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U.S. Department of Energy

Energy Conservation Program for Consumer Products and Commercial and Industrial Equipment

Energy Conservation Standards Rulemaking for Refrigerated Bottled or Canned Beverage Vending Machines

Building Technologies Program
Office of Energy Efficiency and Renewable Energy
July 11, 2006

http://www.eere.energy.gov/buildings/appliance_standards



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Rulemaking Framework for Refrigerated Beverage Vending Machines (BVMs)

- BVMs for Indoor/Outdoor Use
 - Solid-front machines
 - Glass-front machines

- BVMs for Indoor Use Only
 - Solid-front machines
 - Glass-front machines



Welcome and Introduction

- **Introductions**
- **Agenda**
- **Objectives and Expectations**
- **Role of the Facilitator**
 - **Neutral**
 - **Focus on the process and the task at hand**
 - **Ensure everyone participates**
- **Ground Rules (norms)**
 - **Listen as an ally**
 - **Use short succinct statements/keep to the point**
 - **Hold sidebar conversations outside the room**
 - **Focus on issues/not personalities**
 - **One person speak at a time (raise hand to be recognized; state your name for the record)**
 - **Turn down the volume on cell phones or place them on “stun”**
- **Housekeeping Items**
 - **Break times**
 - **Cafeteria/Snack bar**
 - **Restrooms**
 - **Public telephones**
 - **No smoking**
 - **Creating a transcript for the record (obtain a copy from the Court Reporter)**



Public Meeting Agenda

1	Introduction
2	Rulemaking Overview
3	ANOPR Analyses
4	NOPR Analyses
5	Final Rule Analyses
6	Closing Remarks



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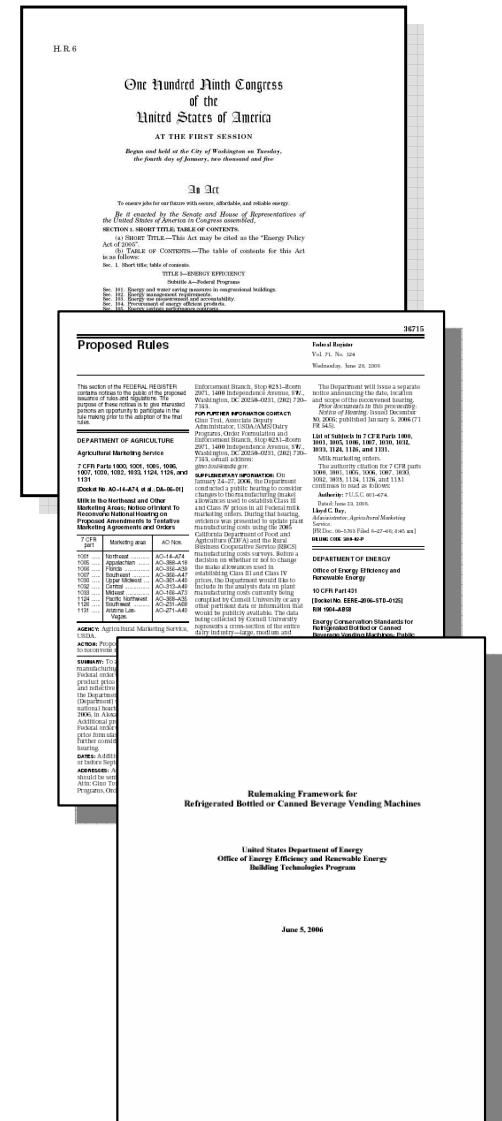
Purpose of the Framework Public Meeting

- Present the procedural and analytical approaches the U.S. Department of Energy (DOE or Department) anticipates using to evaluate energy conservation standards for bottled or canned BVMs.
- Encourage stakeholders to submit data, information, and written comments
- Inform stakeholders and facilitate the rulemaking process



Background

- **The Energy Policy Act of 2005 (EPACT 2005)**
 - Sections 135(a)(3) and 136(a)(3) define the terms applicable to BVMs.
 - Section 135(c)(4) directs DOE to issue by rule, no later than **August 8, 2009**, energy conservation standards effective for equipment manufactured on or after **August 8, 2012**.
 - Section 135(b) directs DOE to adopt, by rule, ANSI/ASHRAE Standard 32.1-2004 as the test procedure.
- **Federal Register – 71 FR 36715 (June 28, 2006)**
 - Gives official public notice of the public meeting and availability of the Framework Document
 - Initiates information and data collection process
 - Encourages interested parties to submit comments
- **Framework Document**
 - Explains issues, analyses, and the process that DOE is considering to develop of energy conservation standards for BVMs, solicits data and information, and invites comments
 - A copy of the Framework Document is available at
 - http://www.eere.energy.gov/buildings/appliance_standards





How to Submit Written Comments

- In all correspondence, please refer to the BVM Rulemaking by
 - **Docket Number EERE-2006-STD-0125**, or
 - **Regulatory Identification Number (RIN) 1904-AB58**.
- **Email:** **beveragevending.rulemaking@ee.doe.gov**
- **Postal Mail:** **Ms. Brenda Edwards-Jones**
 U.S. Department of Energy
 Building Technologies Program, Mail Stop EE-2J
 Beverage Vending Machine Rulemaking, RIN 1904-AB58
 1000 Independence Avenue, SW
 Washington, DC 20585-0121
- **Courier:** **Ms. Brenda Edwards-Jones**
 U.S. Department of Energy
 Building Technologies Program, Room 1J-018
 Beverage Vending Machine Rulemaking, RIN 1904-AB58
 1000 Independence Avenue, SW
 Washington, DC 20585-0121
- **Comment period closes **July 27, 2006**.**

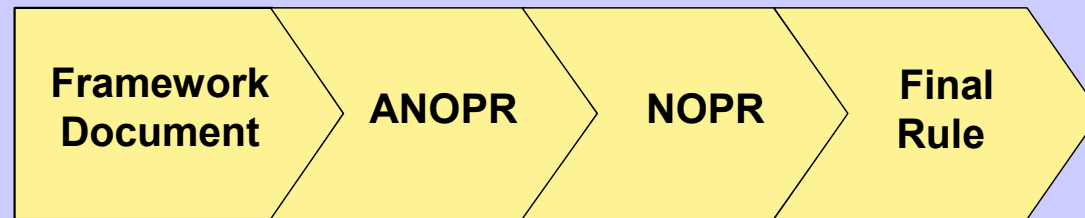


Public Meeting Agenda

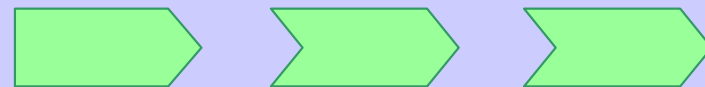
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Stages of the Rulemaking Process




Federal Register notices

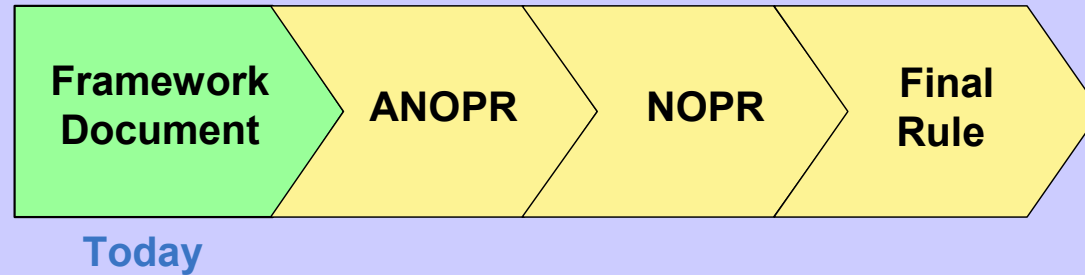


Stakeholder participation

- Public Meetings
- Technical support document
- Written comments on Federal Register notices and Technical Support Documents
- Public meetings and oral comments
- Consultative meetings



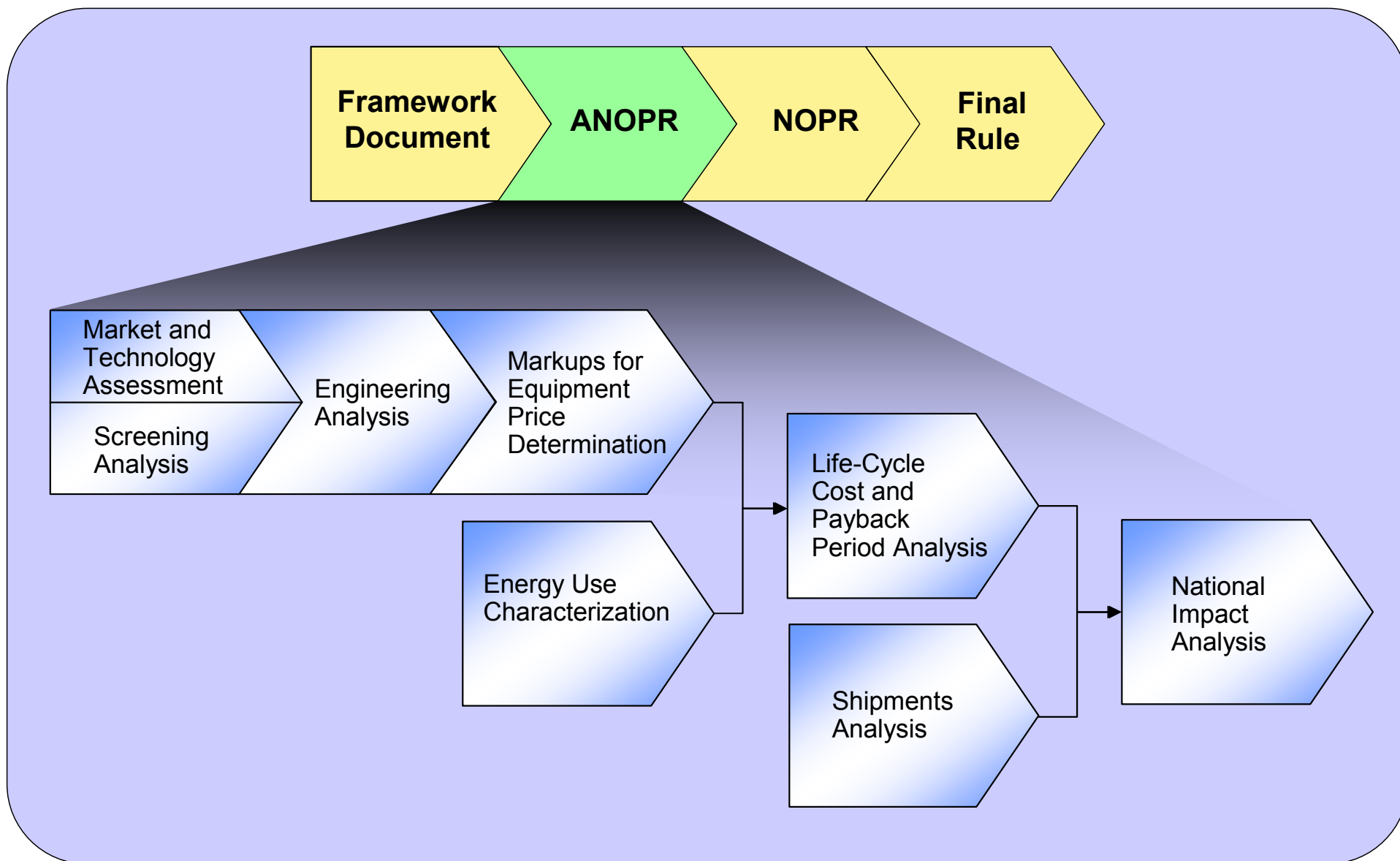
Framework Document



- Today's public meeting covers the Framework Document for this rulemaking.
- The Framework Document provides an overview of the rulemaking process and encourages early stakeholder participation.
- The Department encourages all stakeholders to read the Framework Document, available at:
http://www.eere.energy.gov/buildings/appliance_standards/

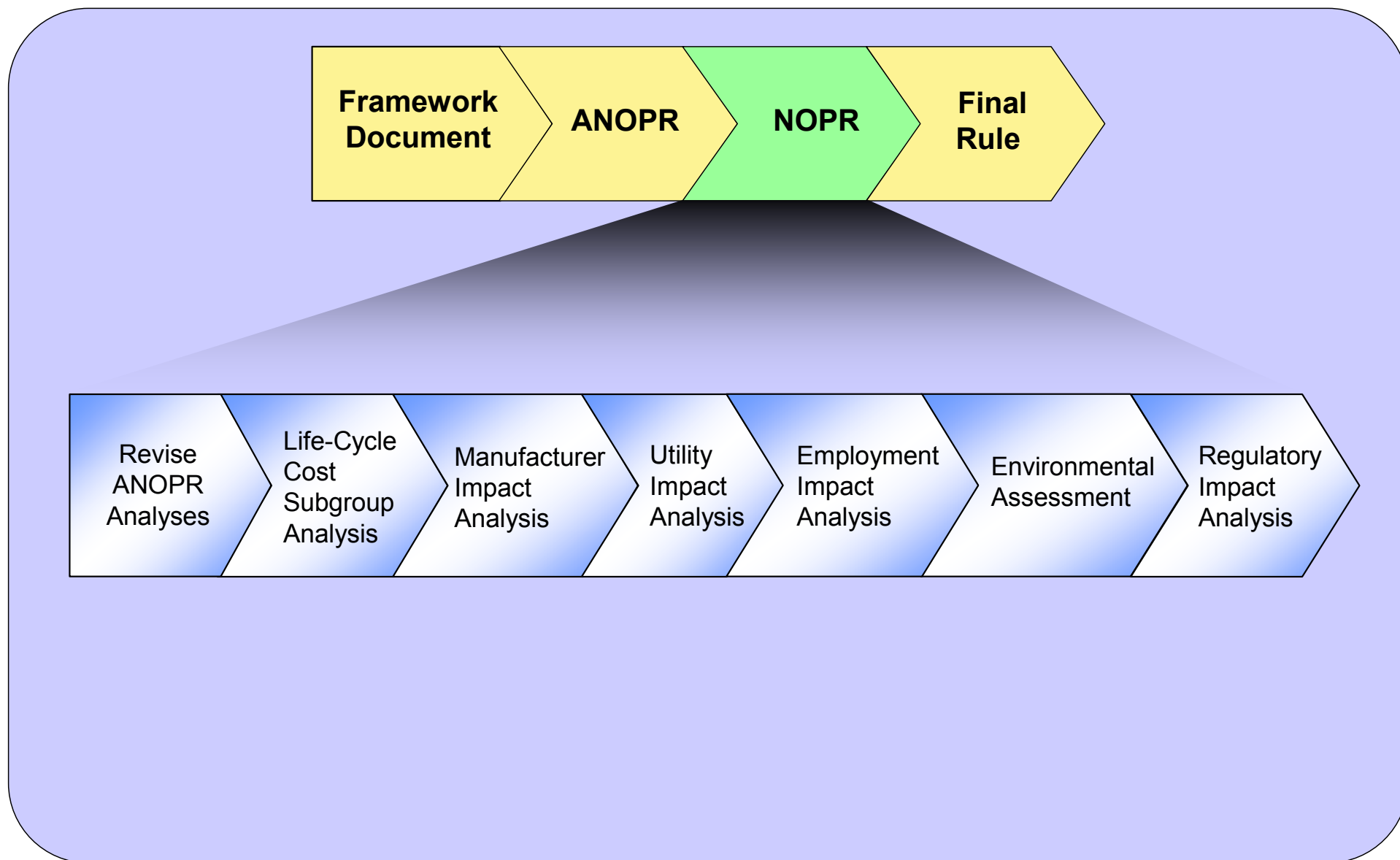


Analyses for Advance Notice of Proposed Rulemaking (ANOPR)



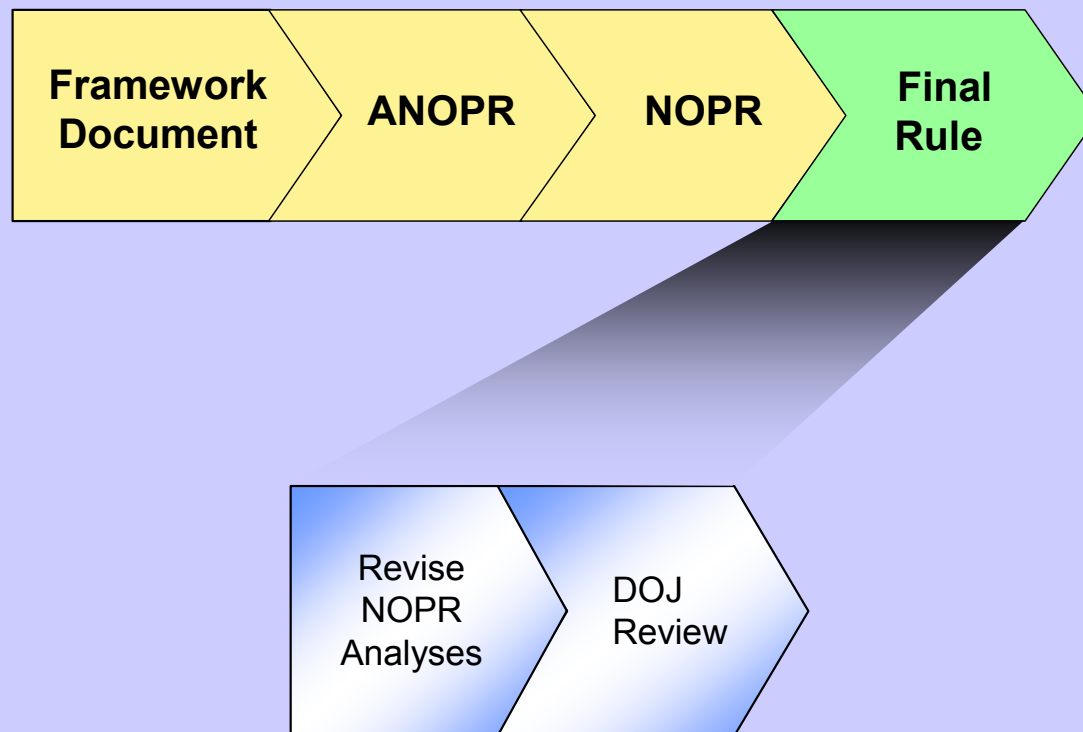


Analyses for Notice of Proposed Rulemaking (NOPR)





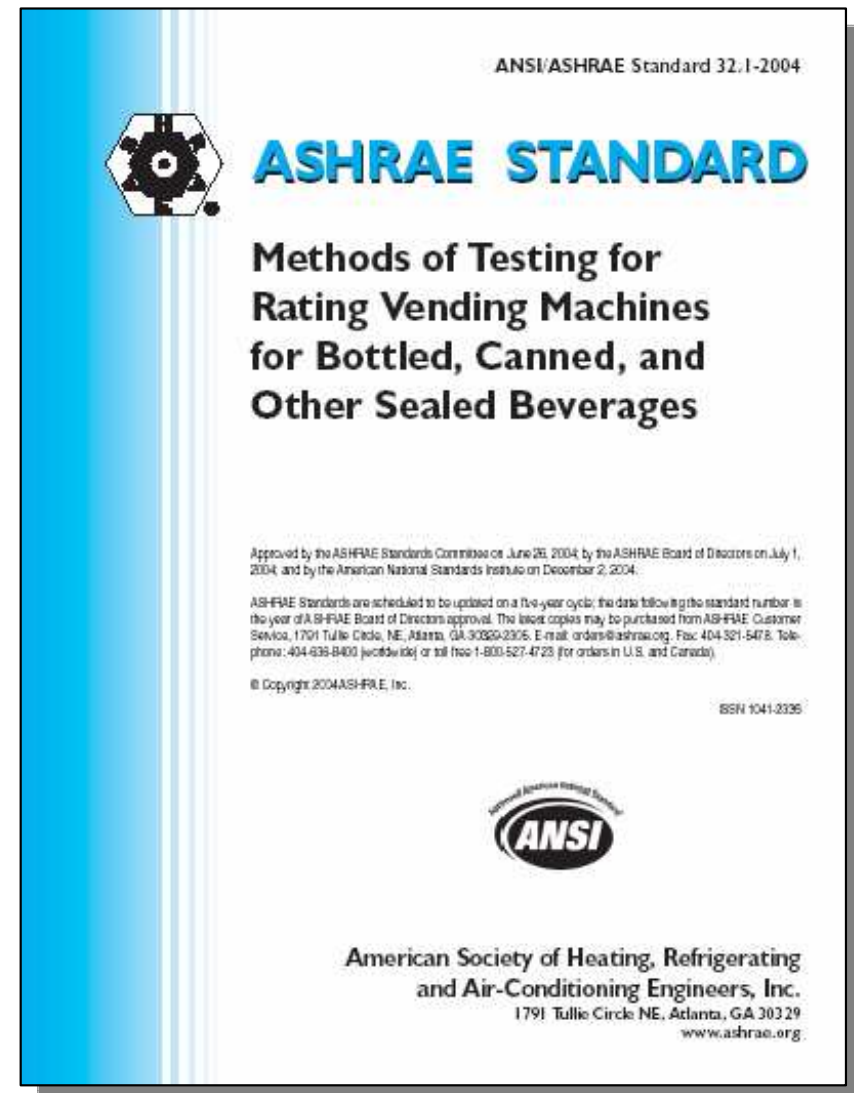
Analyses for Final Rule





Test Procedures

- The Department is adopting testing requirements for equipment covered under this rulemaking based, to the maximum extent practicable, on existing test procedures used in the industry, as mandated by EPACT 2005, in a separate rulemaking.
- The test procedure under consideration is the ANSI/ASHRAE Standard 32.1-2004.
- The Department will issue the Final Rule in the test procedure rulemaking before it publishes the standards notice of proposed rulemaking (NOPR).





Refrigerated Beverage Vending Machine Definition:

- Under section 321(40) of EPCA, 42 U.S.C 6291(40), the term ‘refrigerated bottled or canned beverage vending machine’ means a commercial refrigerator that cools bottled or canned beverages and dispenses the bottled or canned beverages upon payment.
- Under section 340(9) of EPCA, 42 U.S.C 6311(9), the term ‘commercial refrigerator, freezer, and refrigerator-freezer’ means refrigeration equipment that—
 - i. is not a consumer product (as defined in section 321 of EPCA);
 - ii. is not designed and marketed exclusively for medical, scientific, or research purposes;
 - iii. operates at a chilled, frozen, combination chilled and frozen, or variable temperature;
 - iv. displays or stores merchandise and other perishable materials horizontally, semi-vertically, or vertically;
 - v. has transparent or solid doors, sliding or hinged doors, a combination of hinged, sliding, transparent, or solid doors, or no doors;
 - vi. is designed for pull-down temperature applications or holding temperature applications; and
 - vii. is connected to a self-contained condensing unit or to a remote condensing unit.



“Bottled” or “Canned” Beverage

- Based on an initial review of existing definitions, DOE is considering the following definitions from ANSI/ASHRAE Standard 32.1-2004:

“The term ‘**Bottle**’ is a glass or plastic container in which a beverage is sealed;

the term ‘**Can**’ is a container made of metal or paperboard or a combination of both in which a beverage is sealed.”



Item 1-1 The Department requests feedback on this approach to defining the terms “bottle” and “can” as they relate to commercial refrigerated beverage vending machines.



BVMs for Indoor/Outdoor Use

- The most common BVM that is intended both for indoor and outdoor use is the solid-front machine. These machines are typically designed such that they can be placed outdoors and can withstand weather effects.
- They are marked “Suitable for Outdoor Use” or “Suitable for Protected Locations” in accordance with ANSI/UL Standard 541-2005, “Refrigerated Vending Machines”.
- A small number of solid-front machines are classified as having a “live display” door type, where a sample of the product is visible to the consumer through a small window.
- Some glass-front machines are also placed outdoors in sheltered or protected locations limited only by concerns of vandalism and damage.



Item 1-2 The DOE seeks feedback on the terminology “suitable for outdoor use” and “suitable for protected locations” for refrigerated beverage vending machines. What types of beverage vending machines are designed for indoor/outdoor use?



BVMs for Indoor Use Only

- Although solid-front BVMs can be found indoors as well, the machines intended only for indoor use are dominated by glass-front machines.
- They are marked “For Indoor Use Only” in accordance with ANSI/UL Standard 541-2005, “Refrigerated Vending Machines”.
- This design allows the consumer to see the products inside the machine, commonly displayed on shelves. In addition to bottles and cans, these machines also may contain cartons, juice packs, and non-standard bottle and can shapes.



Item 1-3 The DOE seeks feedback on the terminology “indoor use only” for refrigerated beverage vending machines. What types of refrigerated beverage vending machines are designed for indoor use only?



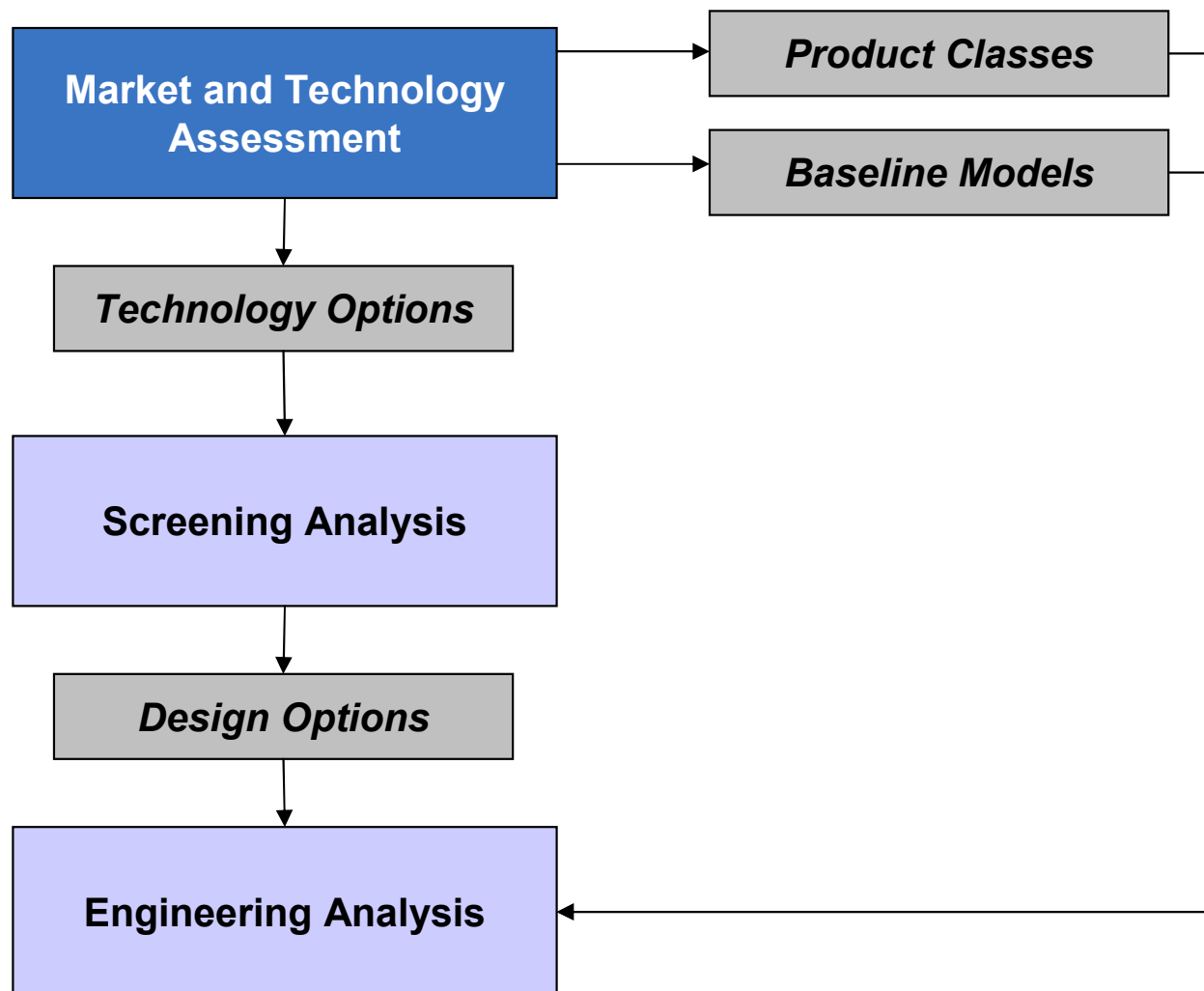
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Relationship of Analyses





Purpose

- Characterize the BVM industry and market.

Method

- Identify and characterize manufacturers of BVMs
- Estimate market shares and trends in the market
- Identify energy conservation technologies that could be applied to BVMs
- Identify regulatory and non-regulatory initiatives intended to improve energy efficiency of the equipment covered under this rulemaking



Request for Information and Data

- The refrigerated BVMs covered under this rulemaking have never before been subject to energy conservation regulations at the Federal level.
- The DOE understands that some limited data on energy consumption and energy efficiency are available for this equipment. However, DOE finds that there is little or no publicly available data on the cost of manufacturing this equipment, manufacturers' market shares, shipments, or channels of distribution.
 - Such data is essential to the development of technologically feasible and economically justified energy conservation standards.
- Stakeholders are encouraged to submit any available, applicable data to DOE for consideration.

Item 3-1 The DOE seeks information that would contribute to the market assessment (e.g., the manufacturers of this equipment in the United States and the products they sell, by product class). It is particularly important that the Department be aware of the major and small/niche manufacturers.

Item 3-2 The DOE seeks information on annual product shipments from 1990 to 2005 (both domestic and imports), and the corresponding shipment-weighted average daily energy consumption of these shipments.



Proposed Product Classes for BVMs

- BVMs intended for indoor/outdoor use:
 - Solid-front machines
 - Glass-front machines
- BVMs for indoor use only:
 - Solid-front machines
 - Glass-front machines

Item 3-3 The DOE seeks comments on the proposed classes for refrigerated beverage vending machines, and on the criteria used in creating the classes. Are the proposed product classes appropriate? For instance, is the distinction between solid-front and glass-front machines necessary?



Request for Feedback

Item 3-4 What product classes, if any, can be combined for standards-setting purposes because of their similarities?

Item 3-5 Can analyses for any one of these product classes be applied or extrapolated to another product class?

Item 3-6 Should all of these product classes be considered (e.g., do any of these product classes have few or no shipments)?

Item 3-7 Should DOE establish energy conservation standards using the upper limits on daily energy consumption as a function of vendible capacity, similar to standards established by the California Energy Commission, ENERGY STAR specifications, and CSA International?



Baseline Units

- Will be selected once product classes are established
- Are selected for each product class, against which changes resulting from energy conservation standards can be measured
- Represent typical characteristics of equipment in that class
- Are used in the engineering analysis and the life-cycle cost and payback period analysis
- Since no Federal energy conservation standards exist, DOE is surveying publicly available product literature to establish baseline models.
- Also, DOE proposes to use information provided by stakeholders in selecting appropriate baseline models.

Item 3-10 The DOE seeks feedback on how to select a baseline model for each class of refrigerated beverage vending machine, e.g., solid-front machines intended for indoor/outdoor use.



ENERGY STAR

- **ENERGY STAR Tier I Requirements*** (effective April 1, 2004)
 $Y = 0.55 [8.66 + (0.009 \times C)]$
- **ENERGY STAR Tier II Requirements**** (effective January 1, 2007)
 $Y = 0.45 [8.66 + (0.009 \times C)]$

Where:

Y = 24 hr energy consumption (kWh/day) after the machine has stabilized

C = vendible capacity

*Under Tier I, a 650-can capacity machine may consume no more than 7.9805, or 7.98 kWh/day (rounded).

**Under Tier II, a 650-can may consume no more than 6.5295 or 6.53 kWh/day (rounded).

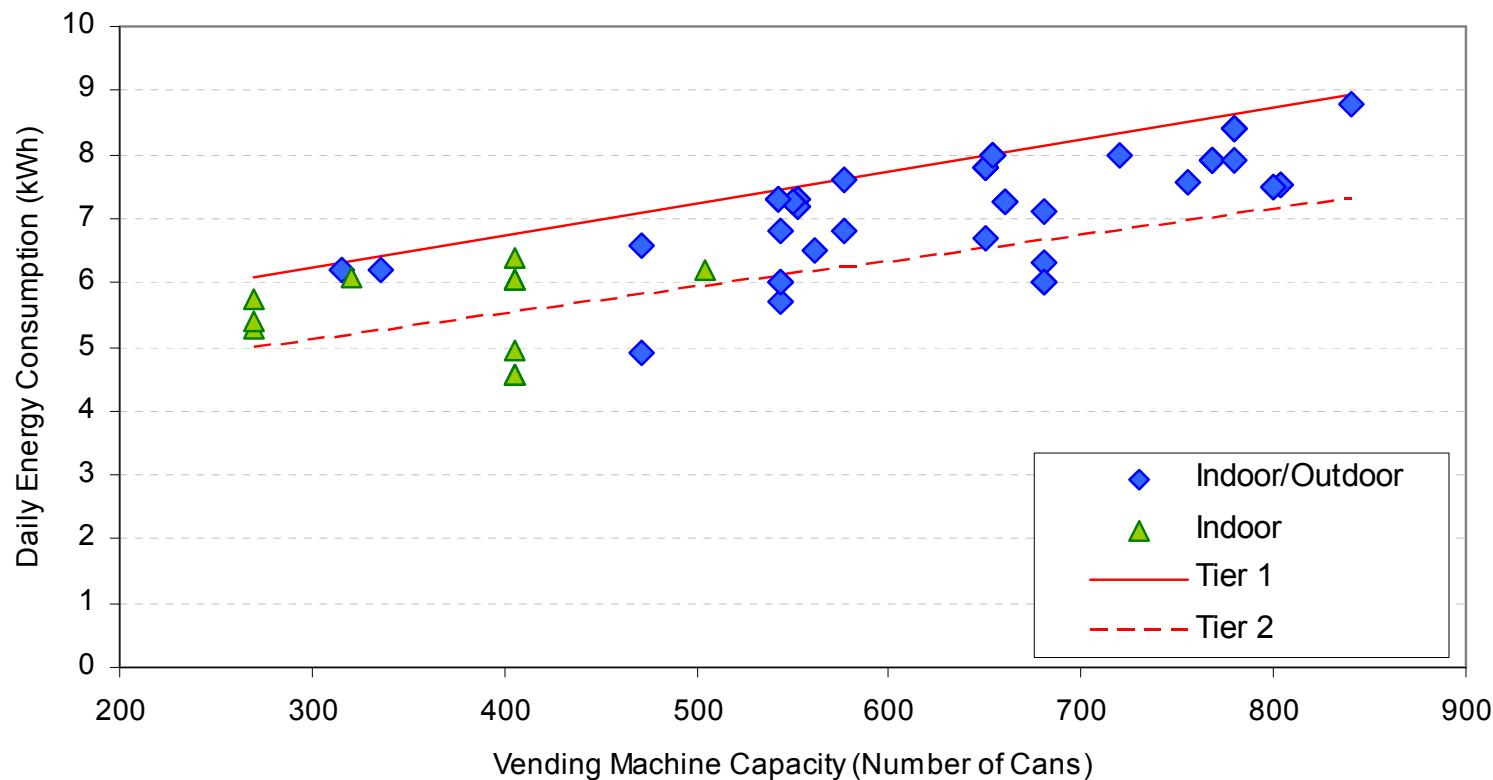
Item 3-11 Is the ENERGY STAR Tier 1 level appropriate for the baseline model?

Item 3-12 Should there be a specific (vendible) capacity for the baseline model within each product class?



Daily Energy Consumption as a Function of Vendible Capacity

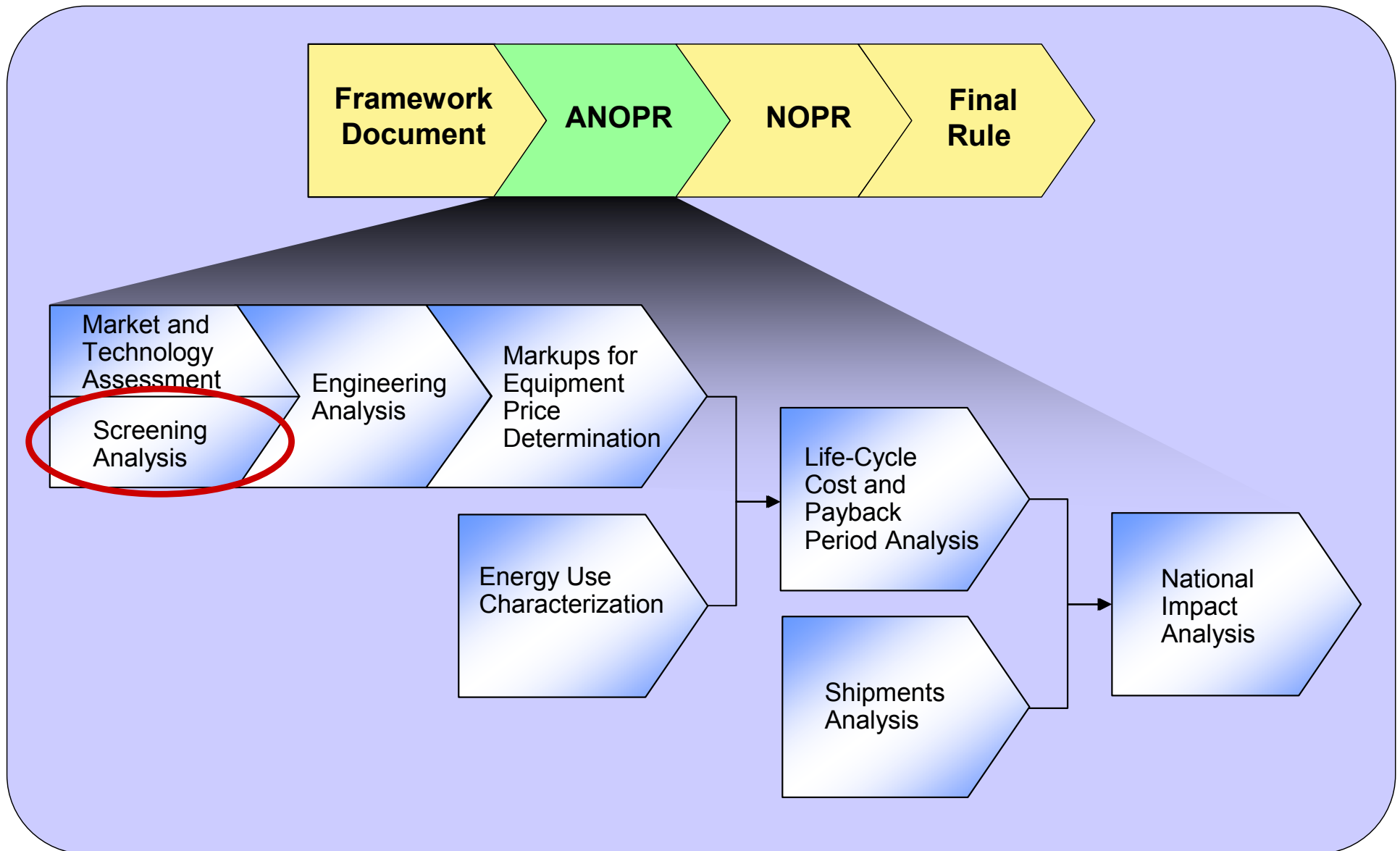
Daily Energy Consumption for ENERGY STAR Qualified Refrigerated Beverage Vending
Machines (as of June 1, 2006) tested to ANSI/ASHRAE Standard 32.1-2004
http://www.energystar.gov/ia/products/prod_lists/vending_prod_list.pdf



http://www.energystar.gov/index.cfm?c=vending_machines.pr_vending_machines



Analyses for Advance Notice of Proposed Rulemaking





Purpose

- Screen out technology options that will not be considered in the rulemaking for refrigerated BVMs.

Method

- Each technology will be screened based on the following four criteria:

Technological feasibility

**Practicability to manufacture,
install, and service**

**Adverse impacts on utility or
availability to consumers**

**Adverse impacts on health or
safety**



Initial Technology Choices:

All Equipment Types
higher-efficiency signage lighting (e.g., T8 fluorescent lamps, light-emitting diodes (LED))
higher-efficiency lighting ballasts (e.g., electronic ballasts instead of magnetic ballasts)
remote lighting ballast location (i.e., outside the refrigerated space)
higher-efficiency expansion valves (e.g., dual-port thermostatic expansion valves (TXV) and electronic expansion valves (EEV))
higher-efficiency evaporator fan motors (e.g., electronically commutated motors (ECM))
increased evaporator surface area or effectiveness.
evaporator fan motor controllers
higher-efficiency evaporator fan blades
low pressure-differential evaporators
anti-sweat heater controls
machine insulation increases or improvements
defrost cycle control (partially or fully demand-based defrost rather than partially or fully time-based defrost)



Initial Technology Choices (con't):

All equipment types (continued)

higher-efficiency compressors (e.g., variable-speed compressors)

liquid-to-suction heat exchanger (LSHX) (i.e., subcool liquid refrigerant with suction line)

increased condenser surface area or effectiveness

higher-efficiency condenser fan motors (e.g., electronically commutated motors (ECM))

condenser fan motor controllers

higher-efficiency condenser fan blades

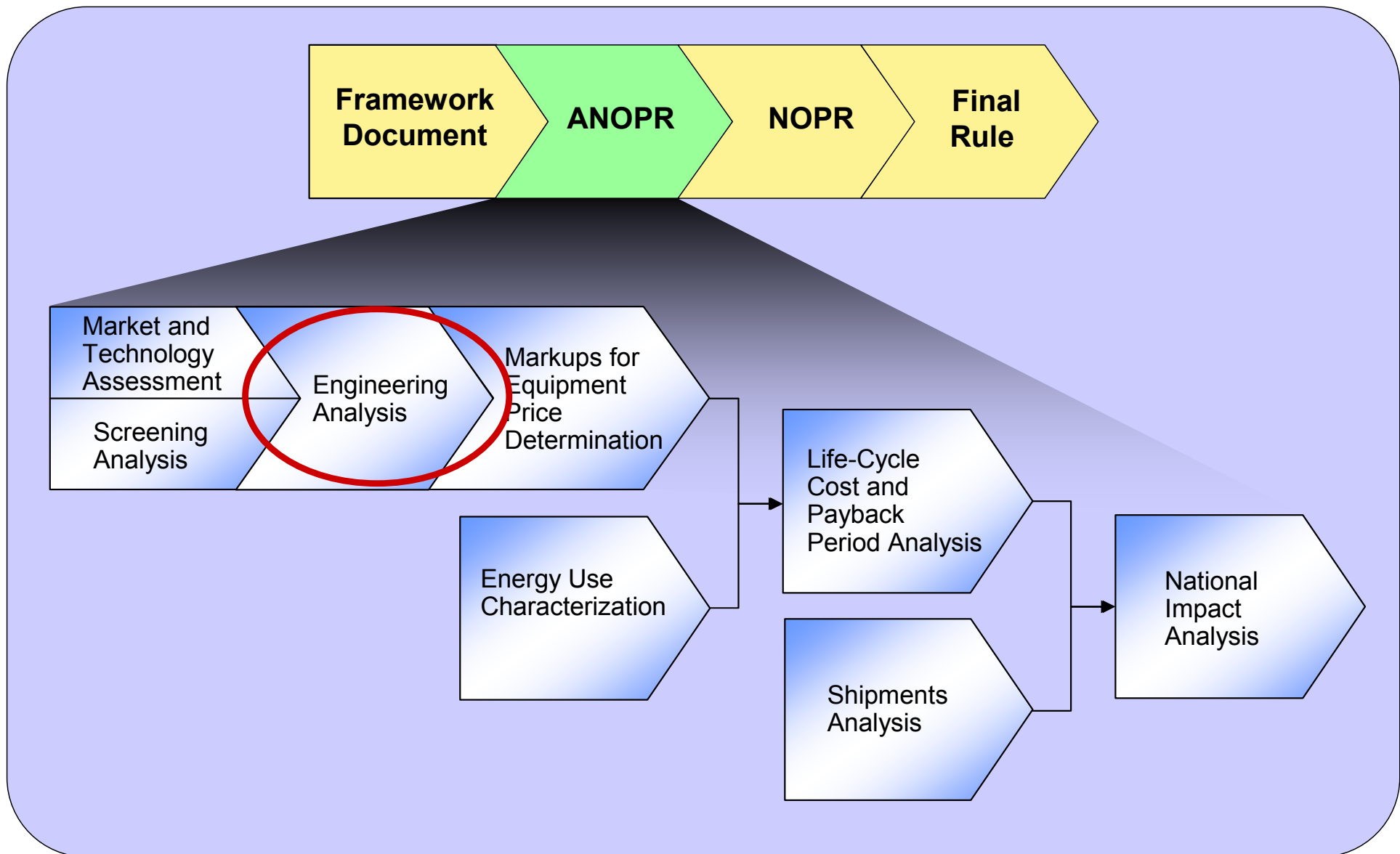
Item 3-8 What technologies or designs, if any, should be added to or removed from the above list?

Item 3-9 What technologies or designs, if any, should be treated individually, or be incorporated into a few standard “design packages”? If “design packages” are possible, how should the packages be assembled?

Item 3-13 DOE seeks information on what particular components and features characterize the baseline model in each product class.



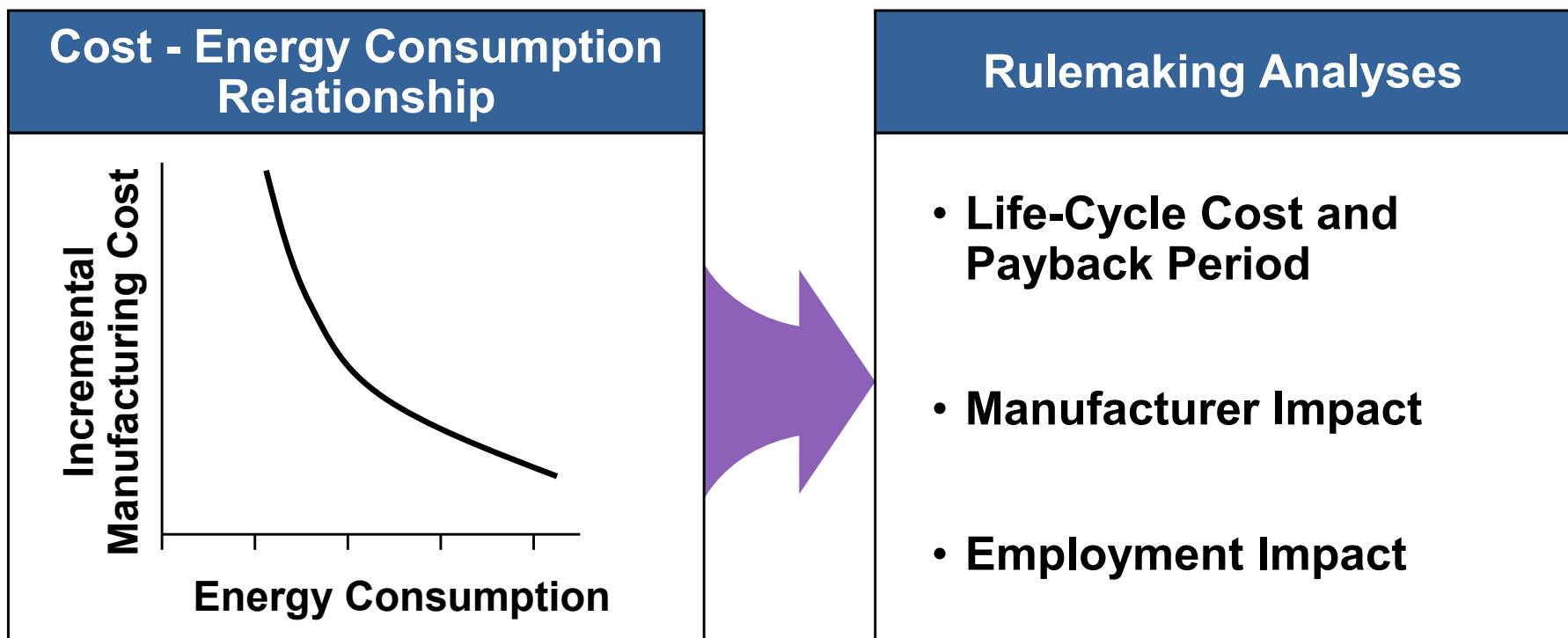
Analyses for Advance Notice of Proposed Rulemaking





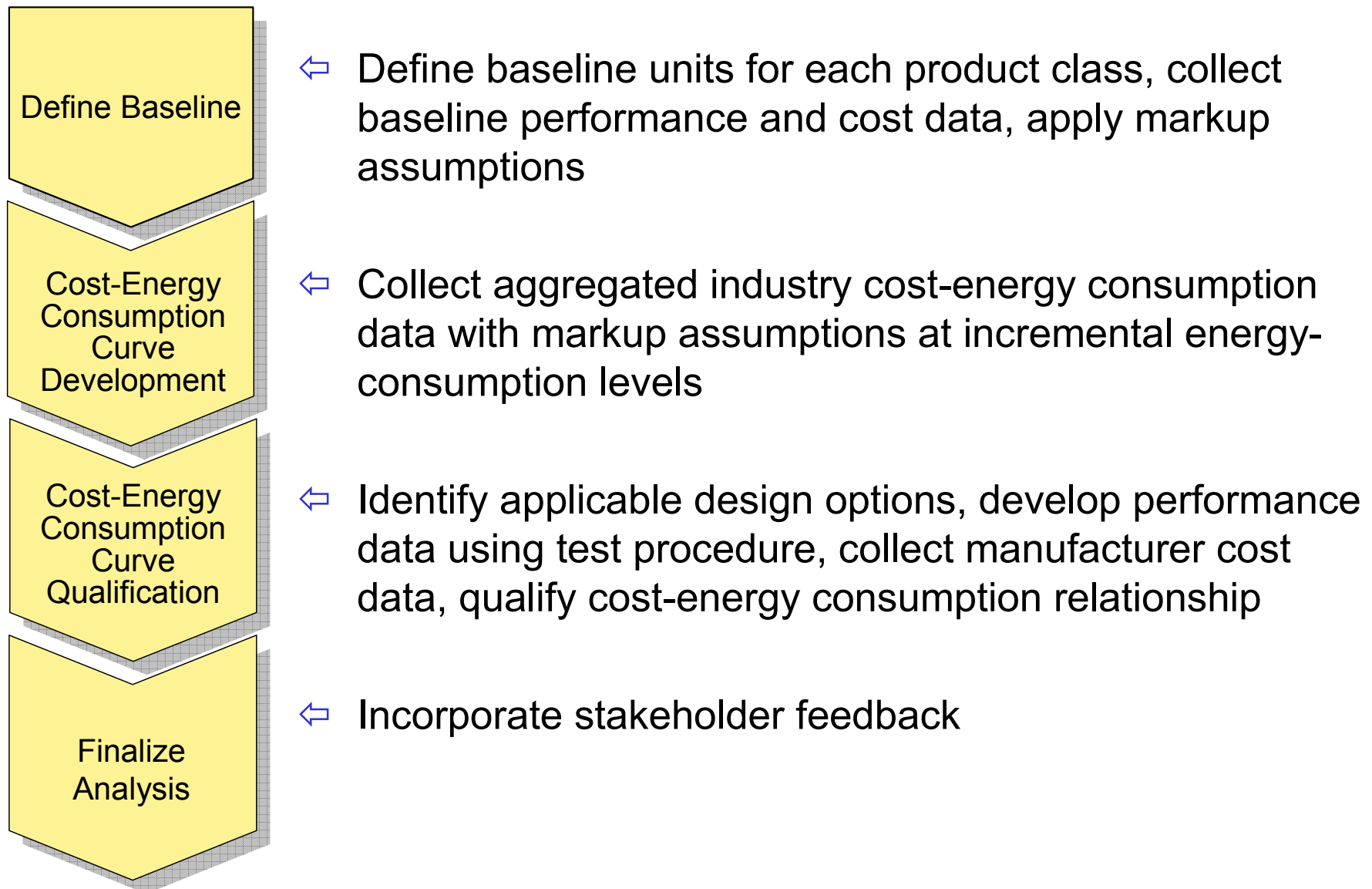
Purpose

- Characterize the relationship between manufacturer cost and energy consumption



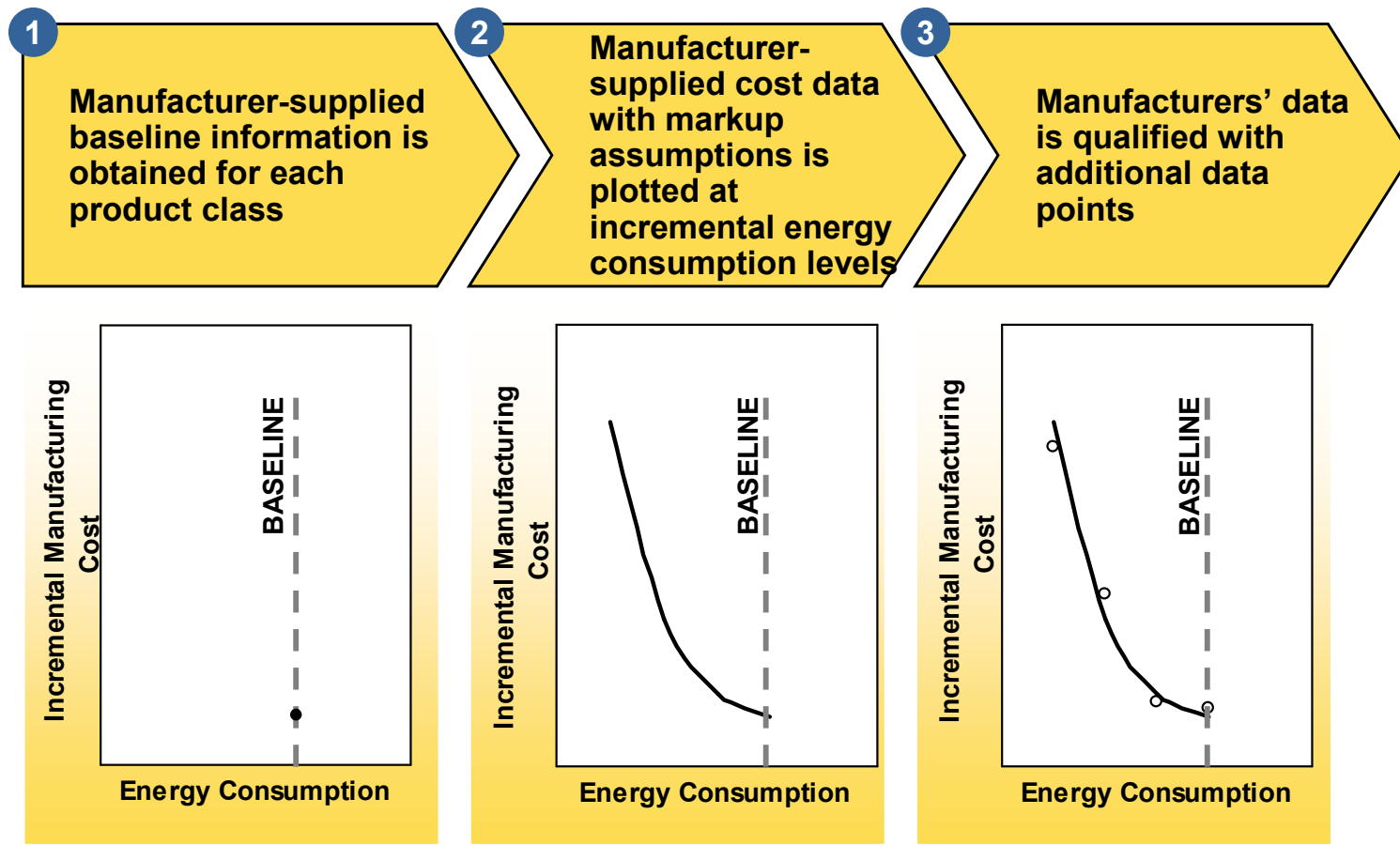


Method





Cost-Energy Consumption Curve Development





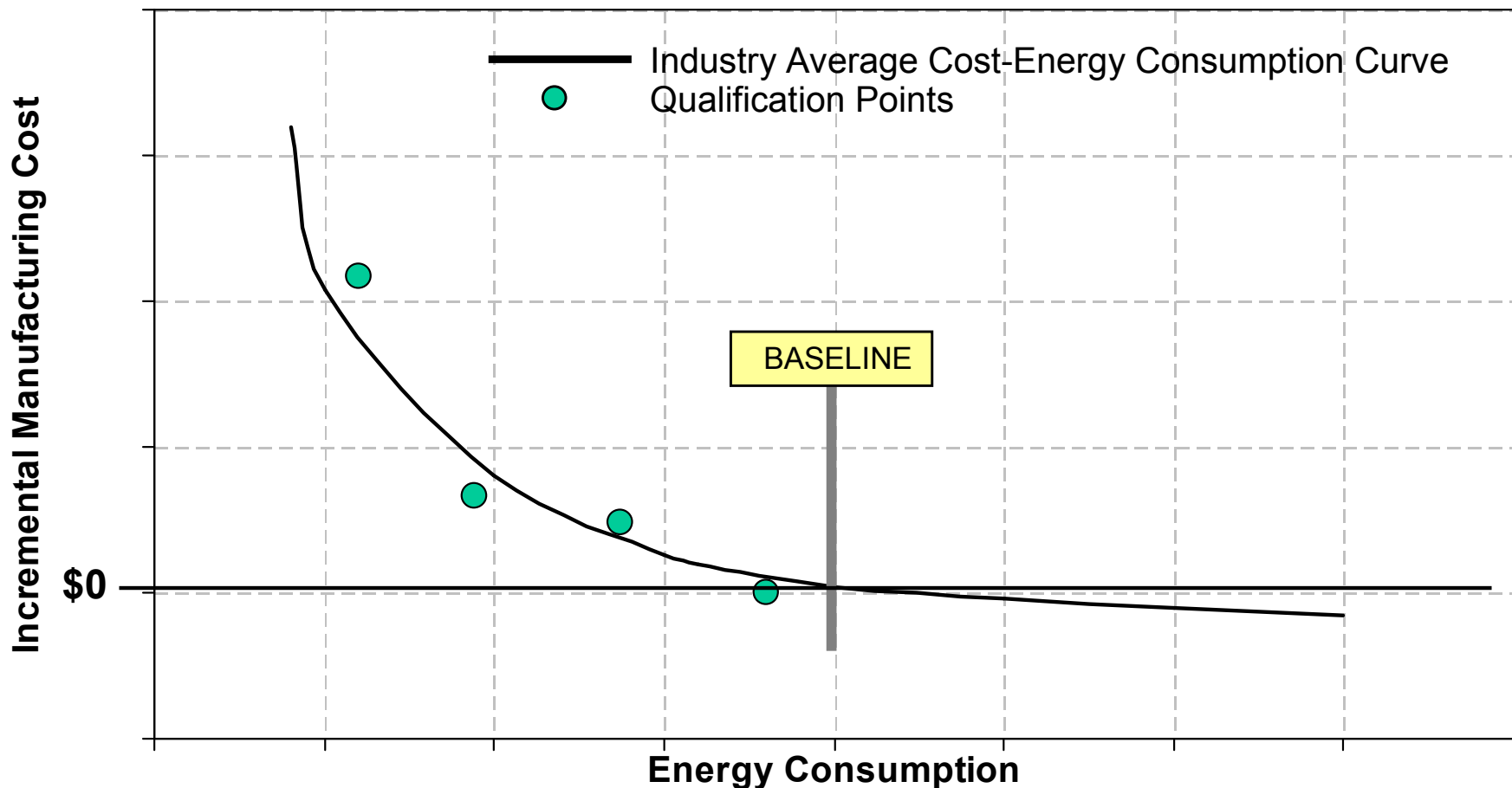
Request for Feedback

Item 5-1 For each product class, DOE seeks information on incremental manufacturing costs and components (see Item 3-13) for four energy-efficiency levels above the baseline (e.g., daily energy consumption, what components are different from the baseline, material costs, labor costs, overhead costs (excluding depreciation), building conversion capital expenditures, tooling/equipment conversion capital expenditures, R&D expenses, marketing expenses, etc.).

Item 5-2 DOE is also interested in any equipment test data that stakeholders can provide (e.g., test procedure used, rating conditions, equipment parameters, test results of daily energy consumption, etc.). Test data for the baseline model in each product class is particularly important.



Cost-Energy Consumption Curve Qualification



Item 5-3 The DOE requests feedback on the use of an efficiency-level approach to determining the relationship between manufacturer selling price and energy consumption for refrigerated beverage vending machines, supported, as needed, by a design-options approach.



Manufacturing Cost Components



- Examples of publicly available information:
 - SEC 10-K reports
 - Company annual reports
 - Dun and Bradstreet reports
 - Value Line industry statistics
 - Standard and Poor's composite industry statistics
 - Ibbotson Associates reports

Item 5-4 The DOE seeks comments on the markup approach proposed for developing estimates of manufacturer selling prices.



Proprietary Designs

- DOE will evaluate all design options that are commercially available or present in a working prototype, including proprietary designs.
- Proprietary designs will only be considered if they do not present a unique path to a given energy consumption level.
- The confidentiality of manufacturers will be maintained.

Outside Regulatory Changes

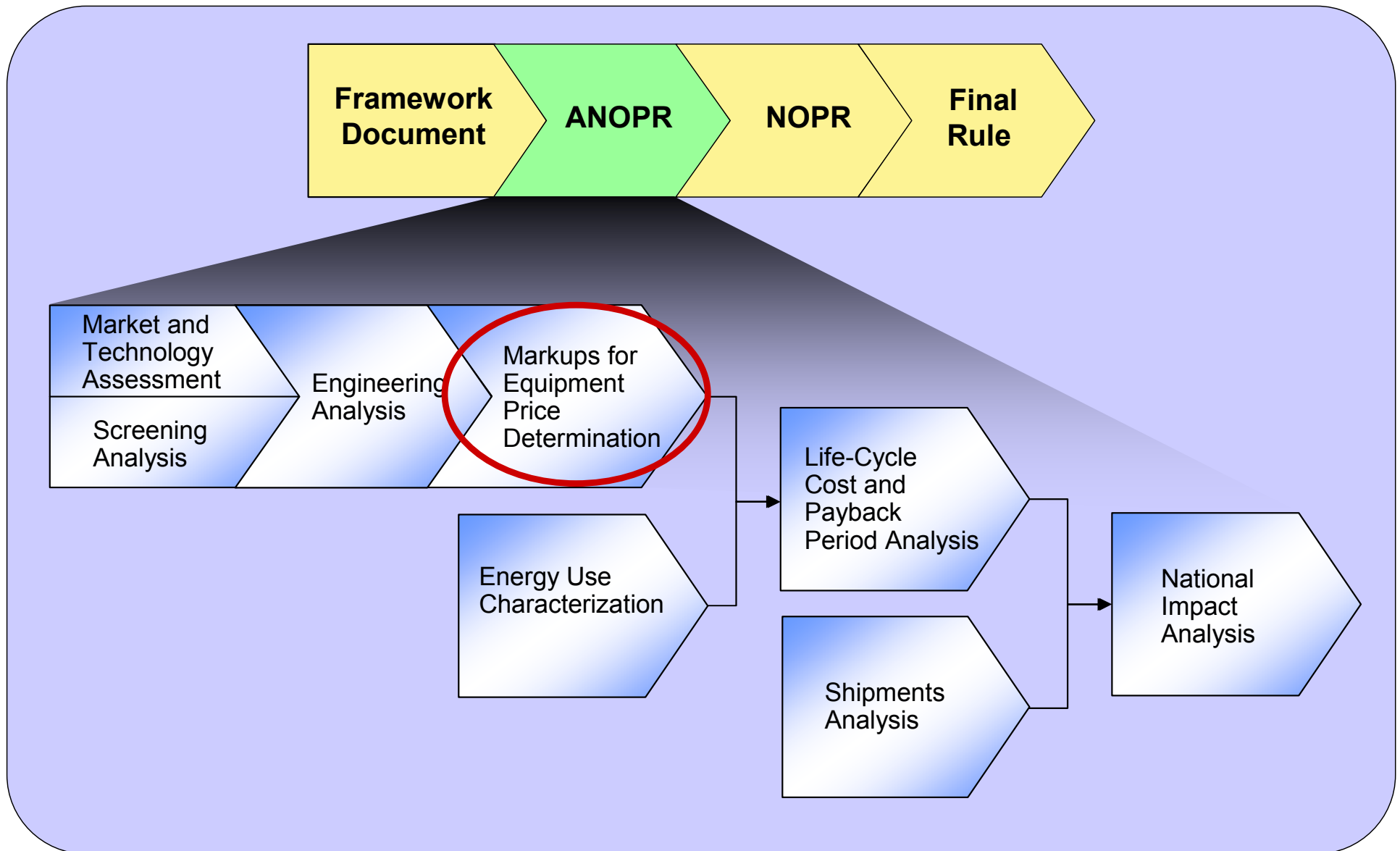
- Consider the effects to manufacturers of other regulatory changes outside of the standards rulemaking process.

Item 5-5 Are there proprietary designs that DOE should consider for any of the products under consideration by this rulemaking? If so, how should DOE acquire the cost data necessary for evaluating these designs?

Item 5-6 Are there additional outside issues that DOE should consider in its analysis of refrigerated beverage vending machines?



Analyses for Advance Notice of Proposed Rulemaking

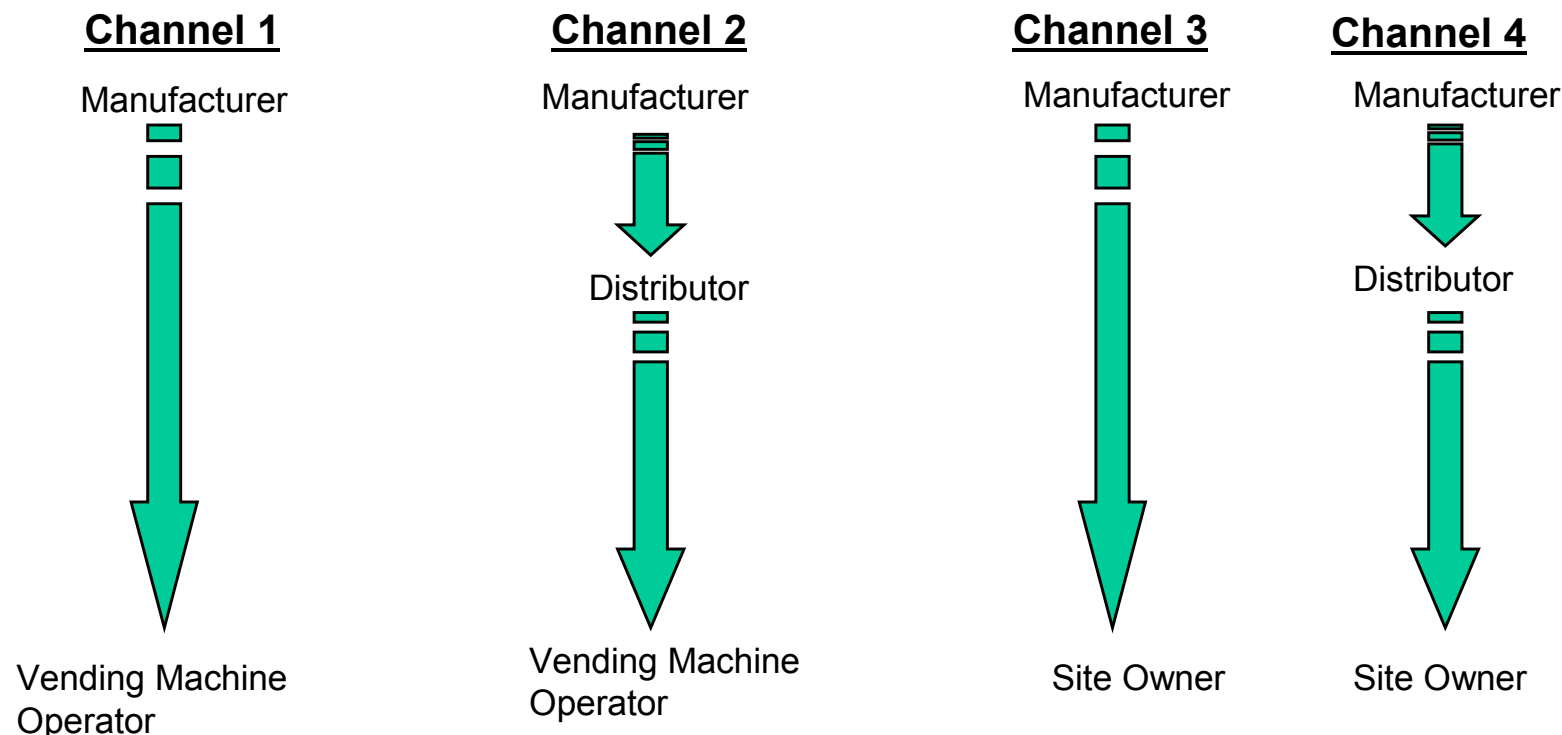




Purpose

- Develop overall distribution chain price markups from the manufacturer to the consumer
- Establish the consumer prices for both baseline equipment and equipment at higher standard levels

Distribution Channels





Two Types of Markups in Distribution Chain: Baseline and Incremental

- Markups relate consumer price to cost-of-goods sold (CGS).
 - Baseline markups relate price to cost prior to a change in efficiency.
 - Baseline markups indicate a consumer price that covers all of a distributor's expenses plus profit.

(Some costs may remain constant even though CGS increases.)

- Incremental markups relate the incremental change in consumer price to the incremental change in CGS.
 - Incremental markups cover only expenses that vary with CGS – in this case, expenses that increase due to an increase in equipment efficiency.
 - Certain costs, such as direct labor costs (salaries, payroll, rental and occupancy) do not vary with efficiency induced changes in CGS and remain constant in the calculation of incremental markups.



Request for Feedback

Item 7-1 DOE requests information on the four distribution channels for the refrigerated beverage vending machines covered under this rulemaking. Also, DOE requests information on the relative fractions of shipments expected for each path in the overall distribution chain for refrigerated beverage vending machines.

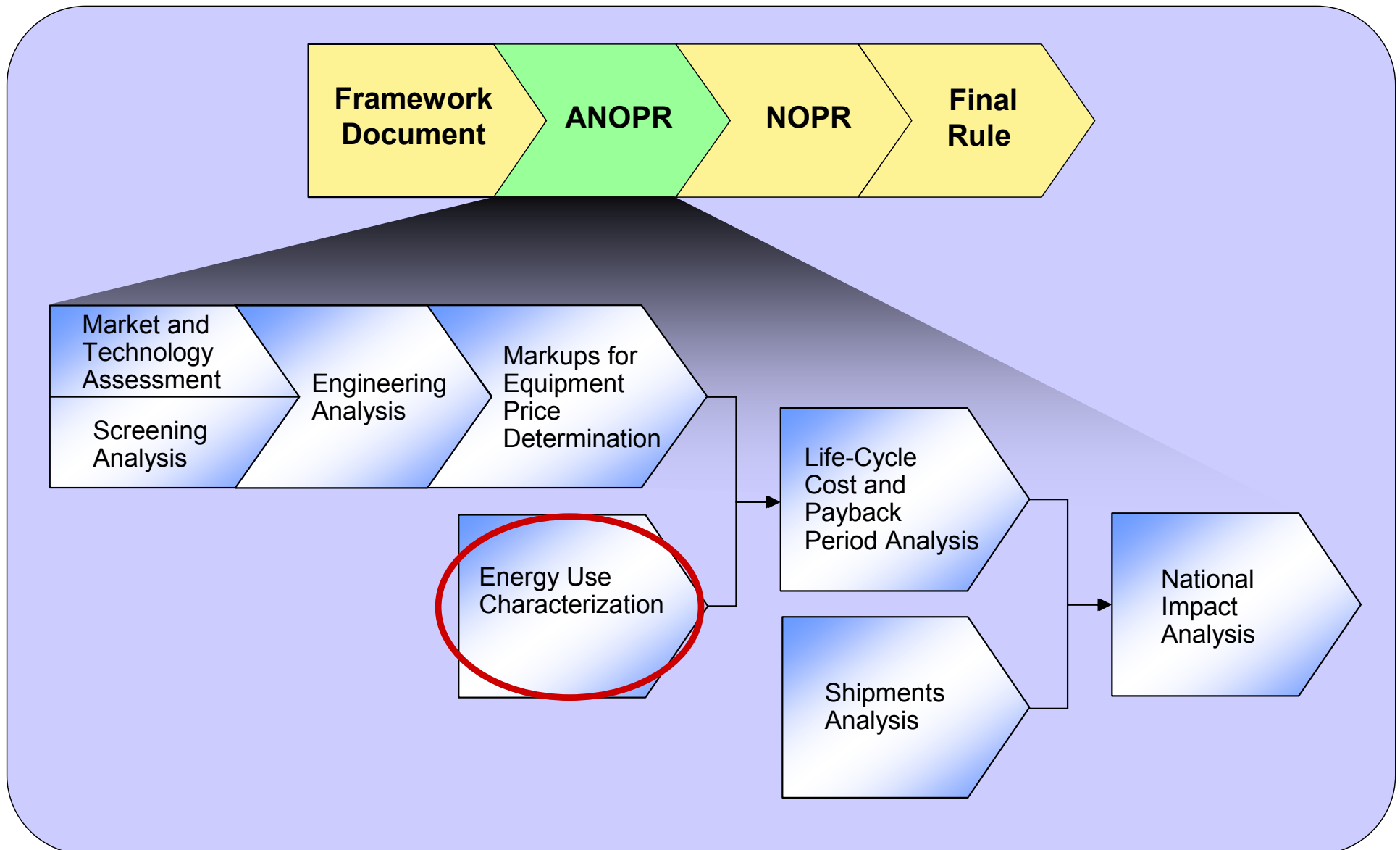
Item 7-2 DOE requests information on how the overall markups for the refrigerated beverage vending machines covered under this rulemaking may vary for each path (or sub-path) in the distribution chain.

Item 7-3 DOE requests feedback on its proposal to use incremental distribution chain markups for the LCC analysis.

Item 7-4 DOE seeks comments on other sources of relevant data that could be used to characterize markups for the refrigerated beverage vending machine industry.



Analyses for Advance Notice of Proposed Rulemaking





Purpose

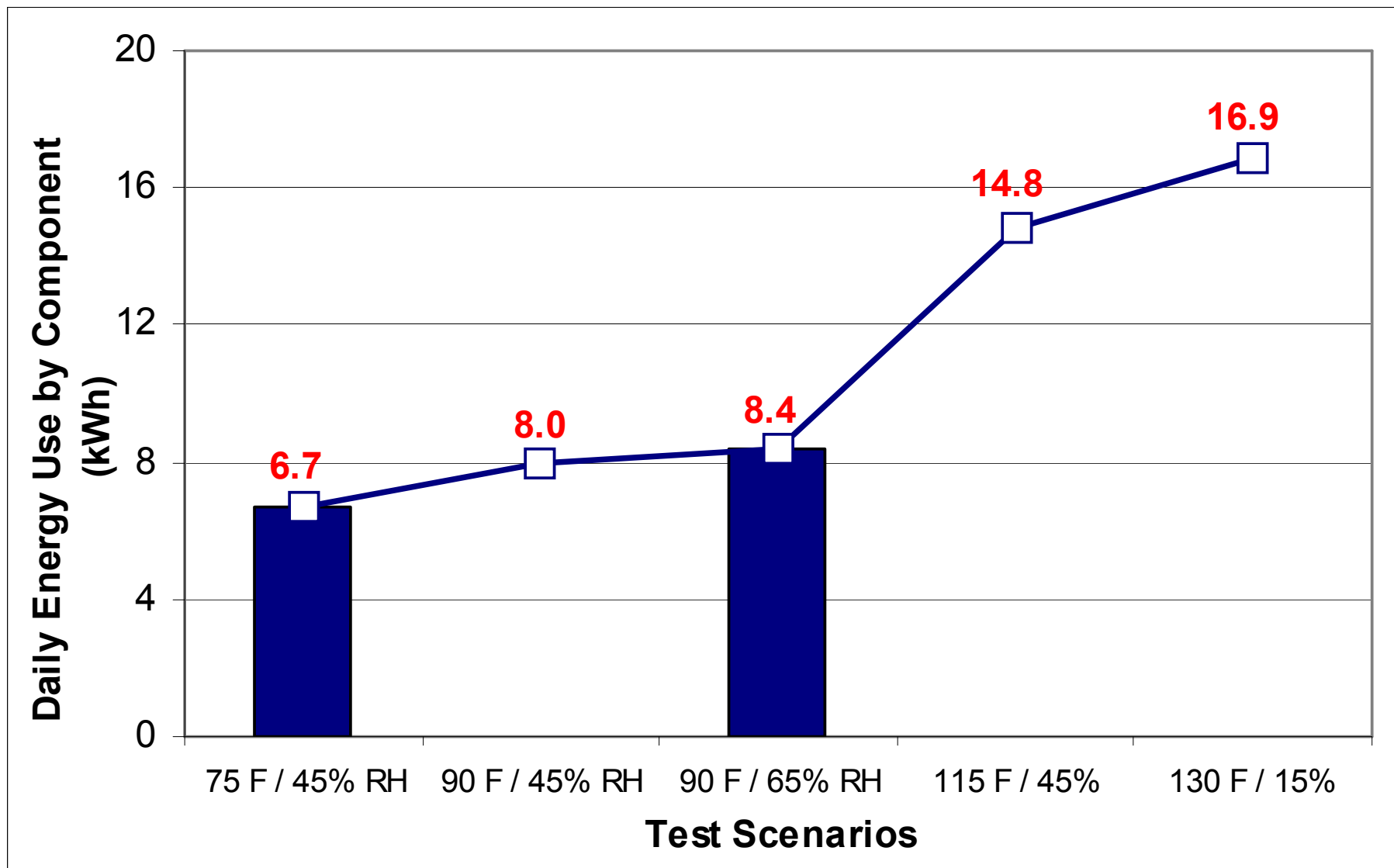
- Develop energy use characteristics for BVMs across a range of climate zones where the equipment is used either outdoors or indoors.
- Provide the basis for the cost of energy calculations used in the Life-Cycle Cost Analysis.

Method

- Daily energy consumption of the different BVMs will be determined using the test procedure criteria, different ambient temperatures, and at different energy efficiency levels.



Daily Energy Use by Component (kWh)



Source: Faramarzi, Sarhadian, Coburn, Mitchell, Lutton, "Evaluation of Prototype High Efficiency Closed Front Vending Machine under Various Ambient Conditions," September 29, 2005.



Request for Feedback

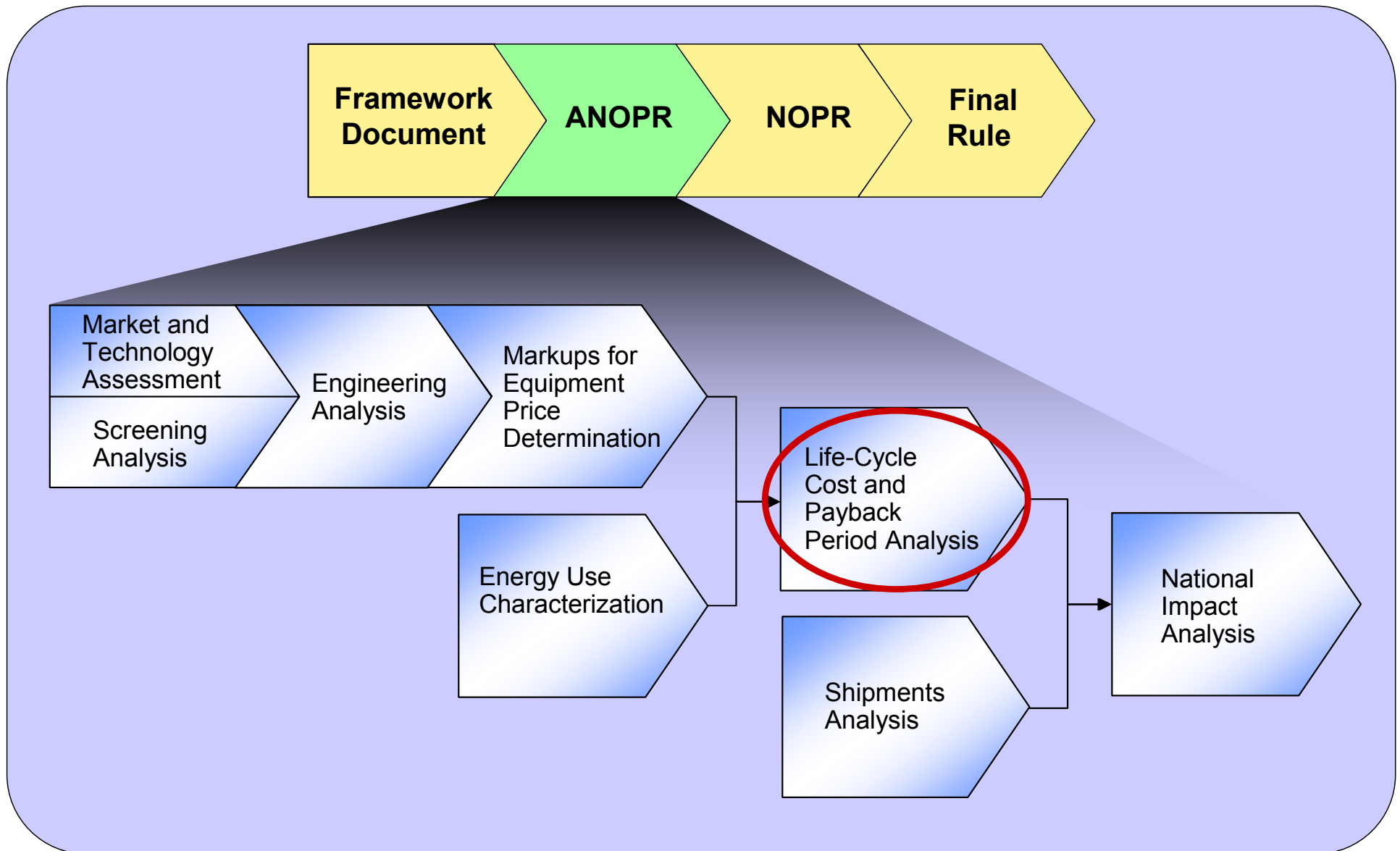
Item 6-1 The DOE believes that the effect on building space-conditioning loads from the use of more efficient refrigerated beverage vending machines will be minimal. Given the variety of building types and vending machine locations, should DOE nevertheless attempt to quantify this effect?

Item 6-2 How should DOE consider energy use in “heating mode” for outdoor machines in cold climates?

Item 6-3 The DOE seeks current, field-measured data on the unit energy consumption of existing refrigerated beverage vending machines which could be used to characterize the overall energy use of this equipment.



Analyses for Advance Notice of Proposed Rulemaking



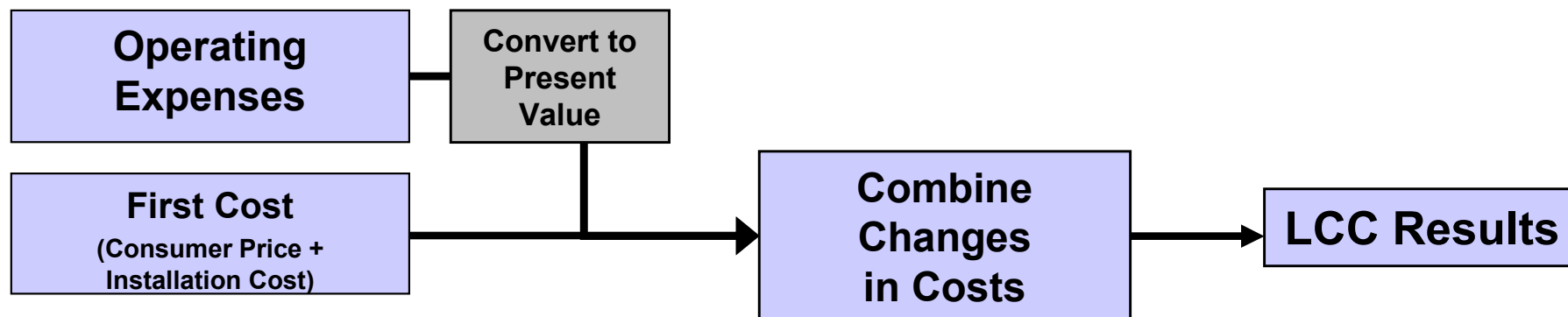


Purpose

- Assess the net life cycle cost (LCC) impacts of differing efficiency standards for BVMs on the “consumer”.

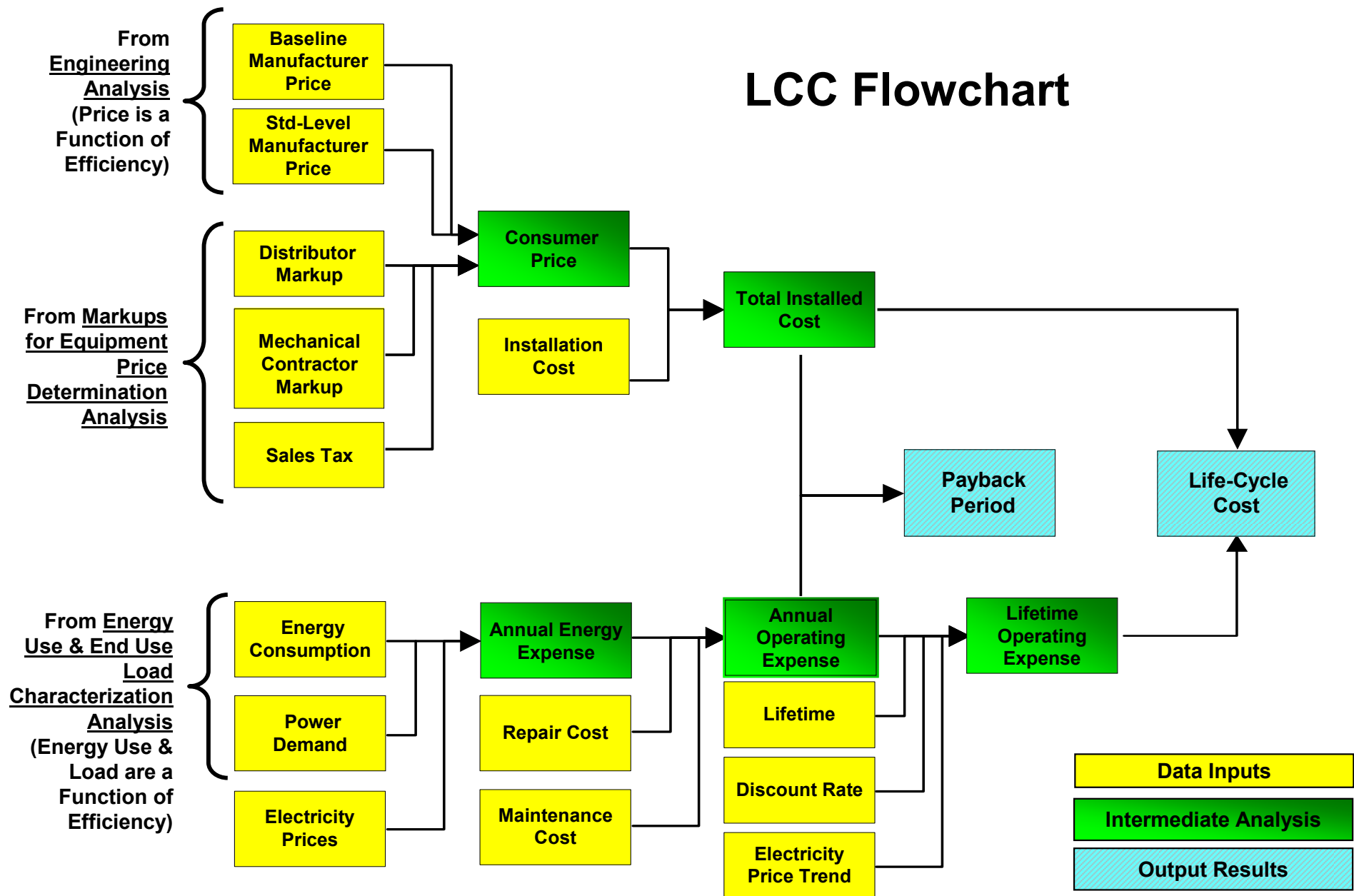
Method

- LCC equals consumer price plus the sum of annual operating costs discounted to a particular base year
- Economic evaluation from the consumer perspective
- Analysis Implemented in an Excel® spreadsheet
- Results are expressed as LCC difference (baseline minus standard level)
- Simple payback (in years) is also calculated and reported in this analysis





Life-Cycle Cost and Payback Period Analysis





Energy Prices

- Energy prices are necessary to convert the energy-use statistics to energy costs for the BVMs analyzed.
- The DOE proposes to use regional average electricity prices for the commercial building sector for its analysis.
- The DOE will use the Energy Information Administration's (EIA's) *Annual Energy Outlook (AEO)* as the default source of projections for future energy prices.

Item 8-1 The DOE seeks comments on the proposed approaches for estimating current and forecasted energy prices.



Discount Rates

- Discount rates are used to convert streams of annual operating expenses to present value in the LCC analysis.
- The DOE will derive the LCC discount rates by estimating the weighted-average cost of capital (WACC) for companies that purchase BVMs.
- The DOE proposes that the WACC be derived from estimates of the cost of capital to vending machine operators and site owners that purchase BVMs (e.g., bottling companies).

Item 8-2 The DOE seeks comment on the proposed approaches for estimating discount rates for consumers using the equipment covered under this rulemaking.

Item 8-3 Given that a large fraction of the consumers of refrigerated beverage vending machines are beverage bottling companies, what other commercial sectors should DOE consider in its evaluation of discount rates? In addition, are direct purchases of this equipment by the government large enough to be included in the evaluation of discount rates?



Other LCC and PBP Analysis Inputs

- Installation Cost
- Equipment Lifetime
- Repair Costs
- Maintenance Costs

Item 8-4 The DOE seeks information on what fraction of the routine installation, maintenance, and repairs involve the efficiency improvements per se, and what are the typical maintenance practices during the life cycle of an originally manufactured machine (e.g., changing display lamps but not the compressor)?

Item 8-5 What is a typical time period between the sale of a new refrigerated beverage vending machine and the first maintenance upgrade or repairs? What are typical cycles for maintenance and repairs?

Item 8-6 The DOE seeks feedback on whether and how routine maintenance, major repair, refurbishment, and installation costs will change for more efficient equipment.

Item 8-7 If it is not appropriate to assume that changes in maintenance, repair, or installation costs would be negligible for equipment with lower energy consumption, the DOE seeks information on the appropriate methodologies for assessing changes to each of these costs.



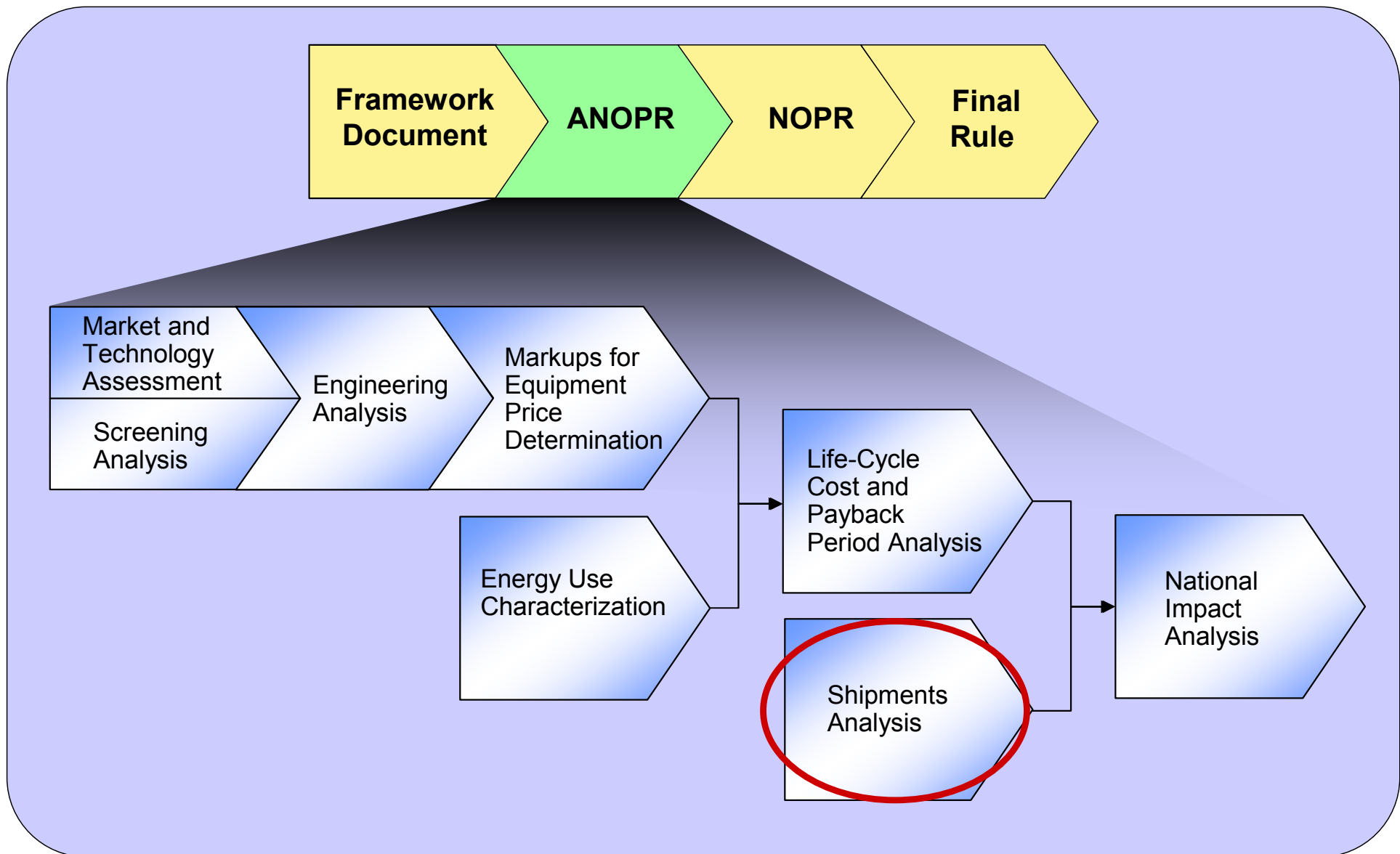
Request for Information

Item 8-8 The DOE seeks information on appropriate equipment lifetimes for the equipment covered in this rulemaking.

Item 8-9 Are there hard data that can be used to estimate the number of new refrigerated beverage vending machines on the market? Absent that, is there a suitable inventory model that could be used to estimate the number of new machines in the market?



Analyses for Advance Notice of Proposed Rulemaking





Purpose

- Project the rate of new equipment shipments under a proposed standard
- Track the stock of BVMs, by vintage, over the time frame of the standard

Method

- The life cycle of a BVM is modeled as a “birth-to-death” process in which it progresses from one operational stage to another:
 - the equipment is purchased new and shipped to a building for installation,
 - the equipment operates for some number of years in that building, and then
 - the equipment is retired.
- The shipments model is calibrated to historical shipments and market saturation data



Request for Feedback

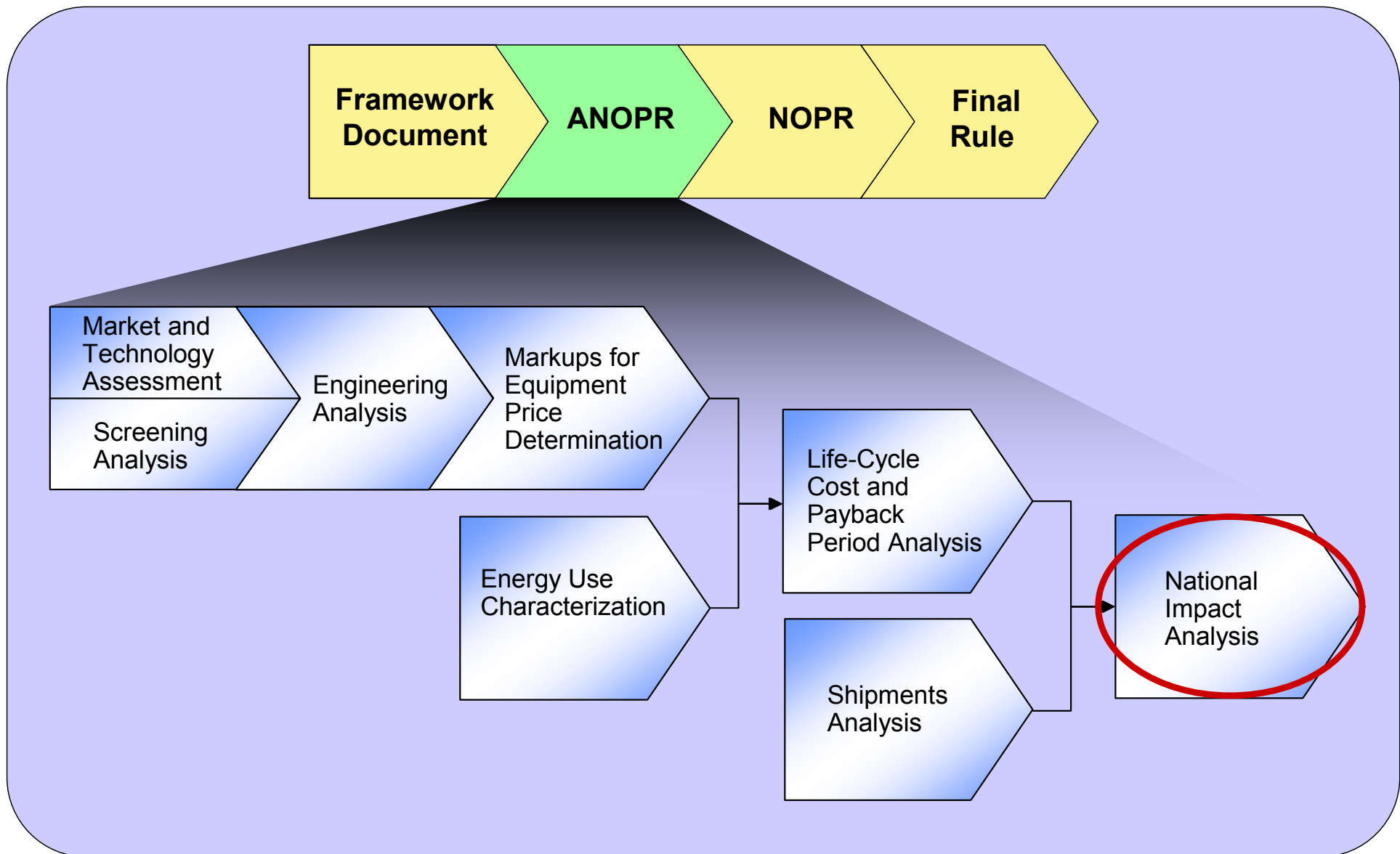
Item 9-1 The DOE seeks information on representative saturation rates for each class of refrigerated beverage vending machine covered under this rulemaking, as well as industry data that show relative trends in market growth for each product class.

Item 9-2 The DOE seeks input on whether there are better methods of forecasting the markets for each equipment class, and requests access to models or methods that could be used to forecast shipments.

Item 9-3 As part of its preliminary manufacturer impact analysis, the DOE will seek input from manufacturers on the potential impact of new energy conservation standards on product shipments. Other stakeholders are also welcome to provide such input. Also, DOE requests input on any market-pull programs that currently exist to promote the adoption of more-efficient refrigerated beverage vending machines.



Analyses for Advance Notice of Proposed Rulemaking





Purpose

- Develop aggregate National Energy Savings (NES) and National Net Present Value (NPV) impact estimates for higher-efficiency standard levels.

Method

- Uses a spreadsheet-based tool
- Develops annual time series of energy and economic impacts
- Provides national summations of impacts for defined analysis periods
- Utilizes the shipments model to estimate the total stock of BVMs in service in any year
- Utilizes the LCC to estimate the cost and energy use per unit in any given year
- Aggregates the costs and energy use, by vintage, for all years in the analysis period
- Reports estimates for energy use at the source of production (Quads Source Energy)
- Reports estimates for economic impact as change in National Net Present Value (in constant year dollars)
- Accounts for the time value of money through use of defined discount rates



Request for Feedback

Item 10-1 The Department seeks comment on the share of the market that is met by refurbished or rebuilt machines.

Item 10-2 What fraction of the stock of refrigerated beverage vending machines in 2012 are expected to meet ENERGY STAR Tier 1 specifications, and what fraction are expected to meet ENERGY STAR Tier 2 specifications?

Item 10-3 The Department seeks comments on its plan to develop NES spreadsheet models for estimating national impacts of amended energy conservation standards.

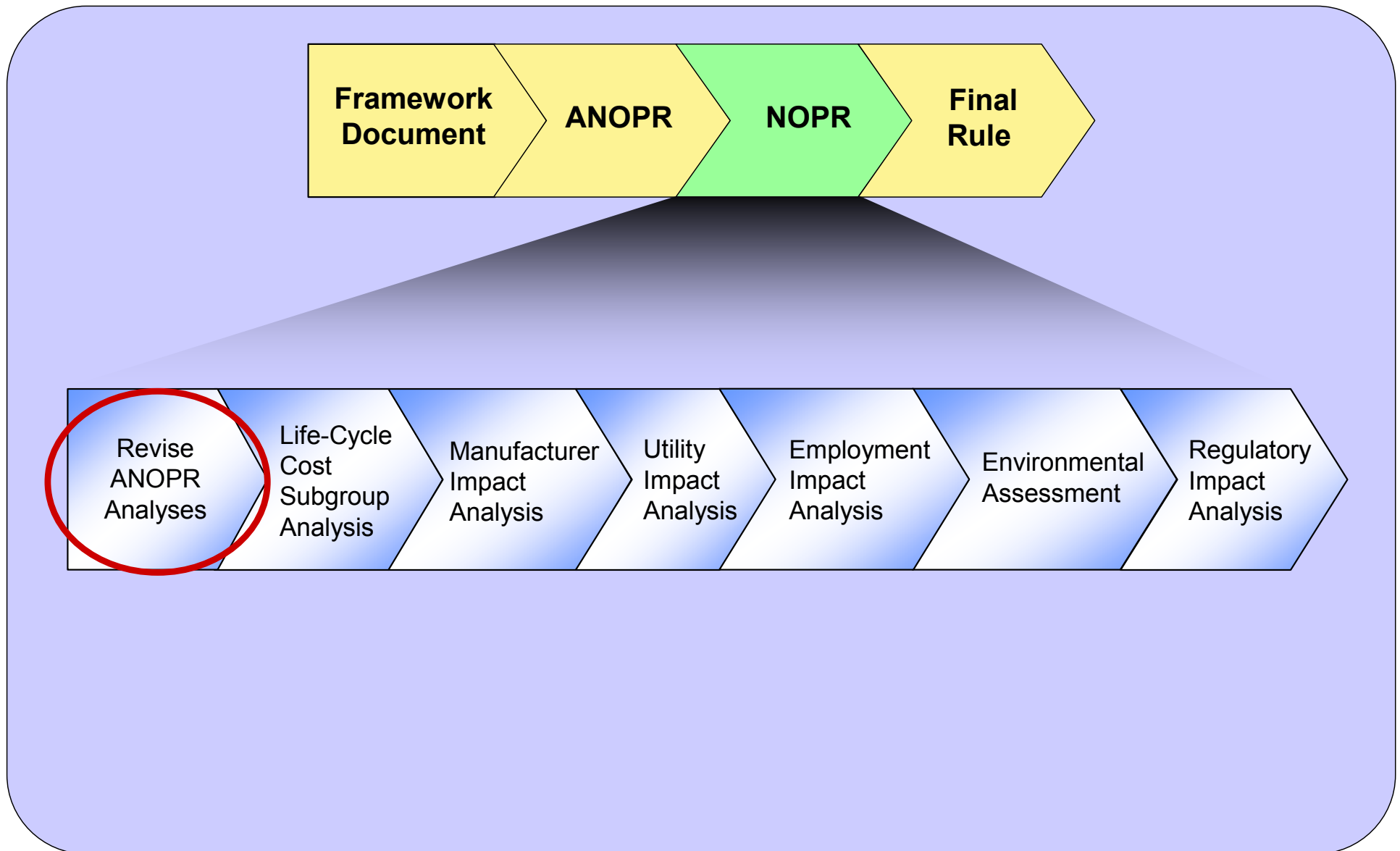


Public Meeting Agenda

1	Introduction
2	Rulemaking Overview
3	ANOPR Analyses
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5	Final Rule Analyses
6	Closing Remarks

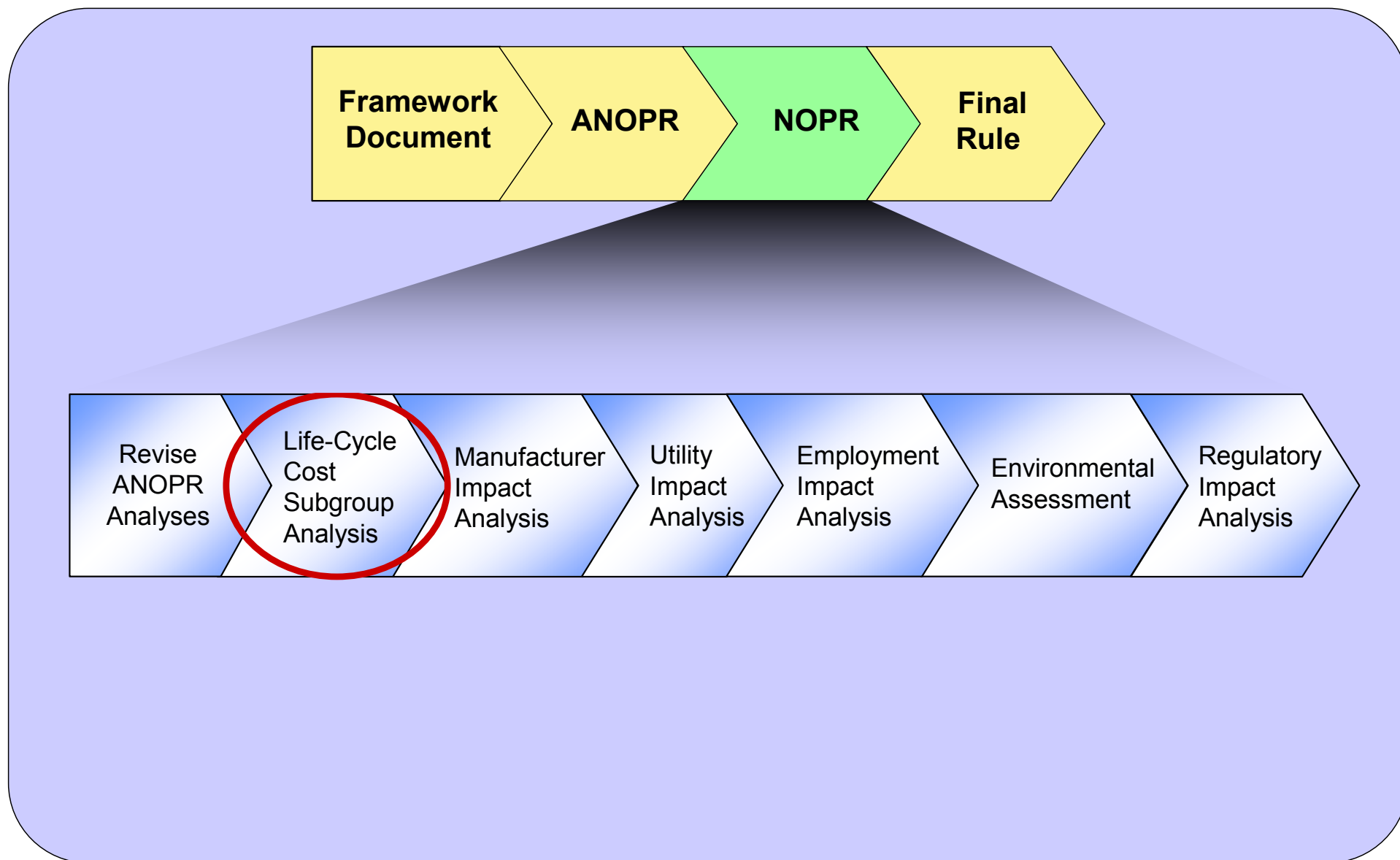


Analyses for Notice of Proposed Rulemaking





Analyses for Notice of Proposed Rulemaking





Purpose

- Analyze the economic impacts of standards on consumer subgroups who may be disproportionately impacted compared with the general user population

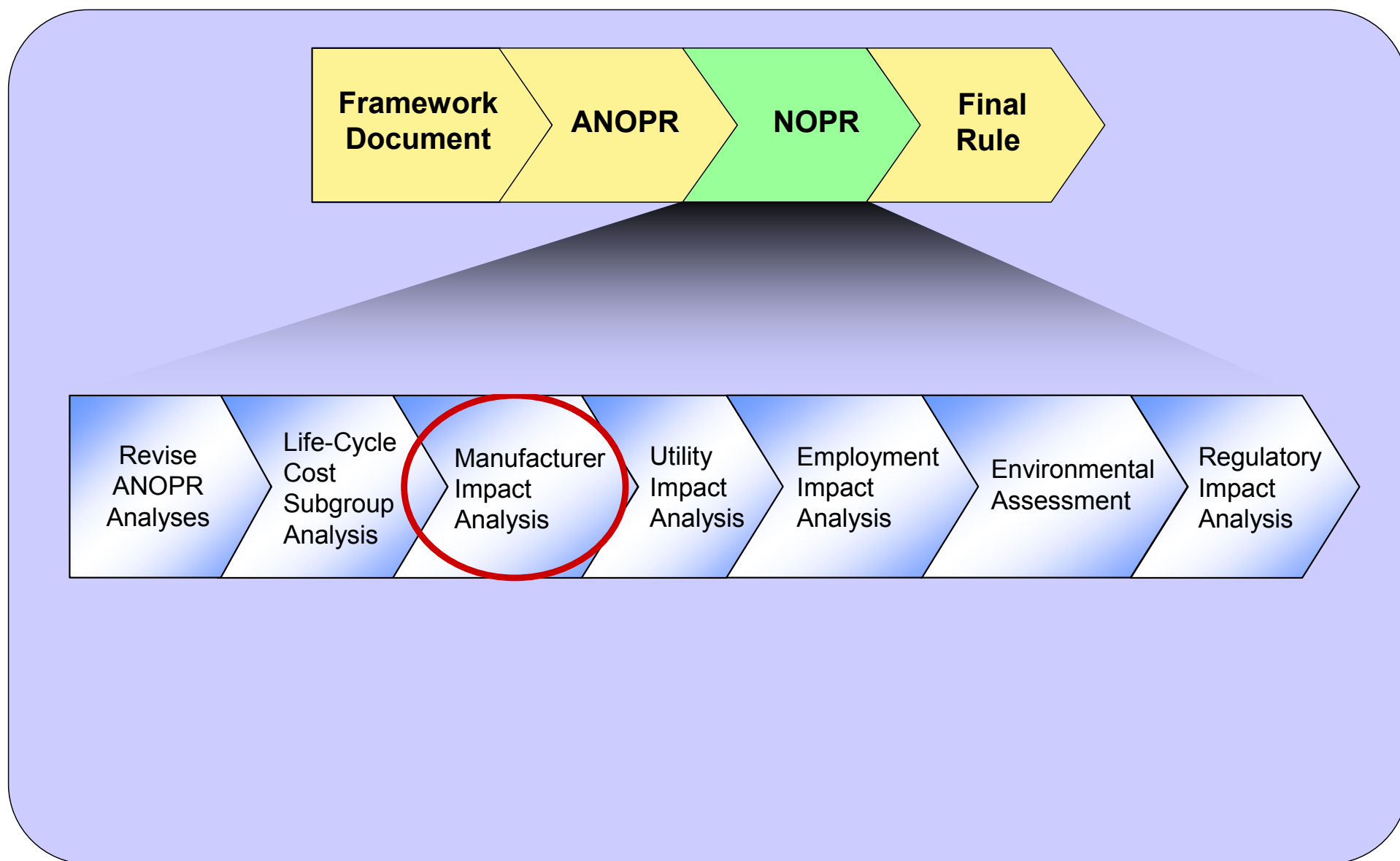
Method

- Extend the LCC analysis to examine the impacts for defined subgroups

Item 11-1 The DOE seeks input about what consumer subgroups it should consider in the rulemaking for refrigerated beverage vending machines. Examples of possible subgroups include independent grocery stores, small convenience stores, public and private schools, and military bases.



Analyses for Notice of Proposed Rulemaking





Purpose

- Assess the impacts of standards on manufacturers
- Identify and estimate impacts on manufacturer subgroups that may be more severely impacted than the industry as a whole
- Examine the impact of cumulative regulatory burden on the industry

Method

- Analyze industry cash flow and net present value through use of the Government Regulatory Impact Model (GRIM)
- Interview manufacturers to refine inputs to the GRIM, develop subgroup analyses, and address qualitative issues

Output

- Industry Net Present Value impacts
- Subgroup Net Present Value impacts
- Other impacts



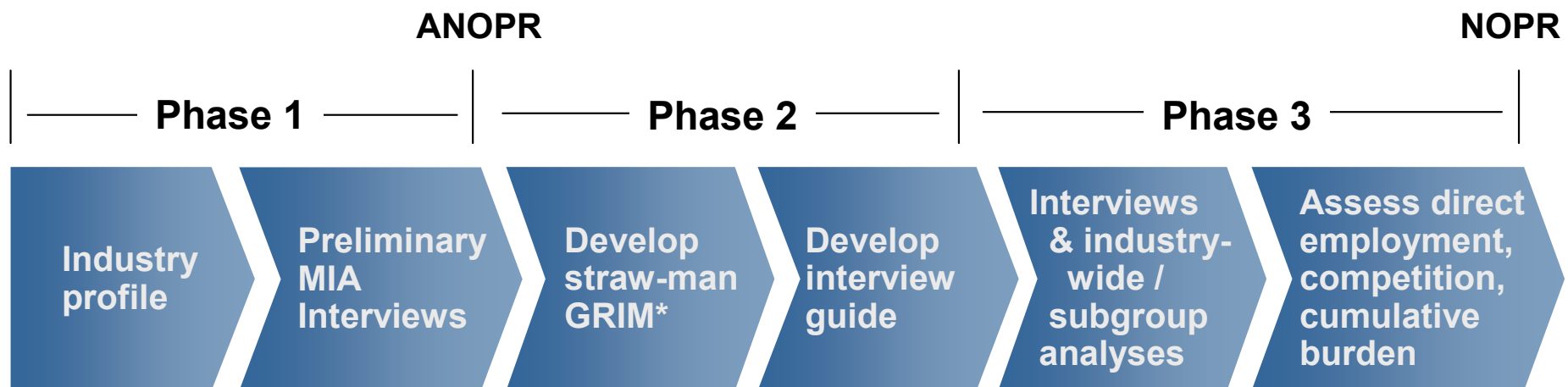
Legislative Requirements

- The Manufacturer Impact Analysis (MIA) fulfills a legislative requirement to determine if a proposed standard is economically justified.
 - The Energy Policy Conservation Act (EPCA) provides seven factors to be evaluated in determining whether an appliance efficiency standard [energy conservation standard] is justified. (42 U.S.C. 6313(a)(6)(B)(i)) Two of these factors require the DOE to consider the **economic impact of standards on manufacturers** and the impacts of any lessening of competition in the industry. Both of these factors are assessed through the manufacturer impact analysis.
 - In September, 1995, the DOE announced a formal effort to consider further improvements to the process used to develop appliance efficiency standards. As a result of this combined effort, DOE published Procedures, Interpretations and Policies for Consideration of New or Revised Energy Conservation Standards for Consumer Products (the “process rule”), 10 CFR 430, Subpart C, Appendix A. The process rule contains **principles for the analysis** of regulatory impacts on manufacturers
 - Recently, the DOE announced changes to the manufacturer impact analysis format through a report issued to Congress on January 31, 2006 (as required by section 141 of EPACT 2005). Under this new format, DOE will collect, evaluate, and report **preliminary manufacturer impact analysis** information in the ANOPR. Such preliminary information includes the anticipated conversion capital expenditures by efficiency level and the corresponding, anticipated impacts on jobs.



Methodology

- The MIA consists of three main phases



* Government Regulatory Impact Model (GRIM)



Methodology: Phase 1

- Consists of the industry profile and preliminary manufacturer impact analysis interviews

Industry Profile

- » Evaluation of current and past industry structure and market characteristics
- » Produce an industry profile report with aggregated findings and characteristics
- » Identify critical issues that require special consideration in the MIA, for example:
 - » Types or groups of manufacturers
 - » Access to technology
 - » Potential regulatory scenarios

Preliminary MIA Interviews

- » Occurs during the engineering analysis
- » Topics include:
 - » Shipment projections
 - » Conversion costs
 - » Product mix and profitability
 - » Market shares and industry consolidation
 - » Cumulative regulatory burden



Methodology: Phase 2

- Consists of the straw-man GRIM and interview guide preparation

Straw-man GRIM

- » Starting point for discussion of impacts
- » Inputs include:
 - » Manufacturer prices
 - » Shipment forecasts
 - » Manufacturing cost estimates
 - » Financial information

Interview Guide Preparation

- » Interview topics include:
 - » Engineering analysis
 - » Shipments model
 - » Cost structure and financial parameters
 - » Conversion costs
 - » Cumulative burden
 - » Direct employment impacts
 - » Import / Export issues
 - » Consolidation / competitive impacts
 - » Replacement parts or refurbishments
 - » Impact of the standard's effective date



Methodology: Phase 3

- Consists of the manufacturer interviews, subgroup analyses, and assessment of industry impacts

Manufacturer Interviews

- » Confidential discussion of potential impacts resulting from standards, including:
 - » Obsolescence of existing manufacturing assets
 - » Tooling
 - » Investment

Assessment of Impacts

- » Assess competitive impacts on smaller, significant manufacturers
- » Assess cumulative regulatory burden on manufacturers from amended DOE standards and other regulatory actions
- » Assess impacts on industry employment levels
- » Assess impacts on manufacturer subgroups



Request for Feedback

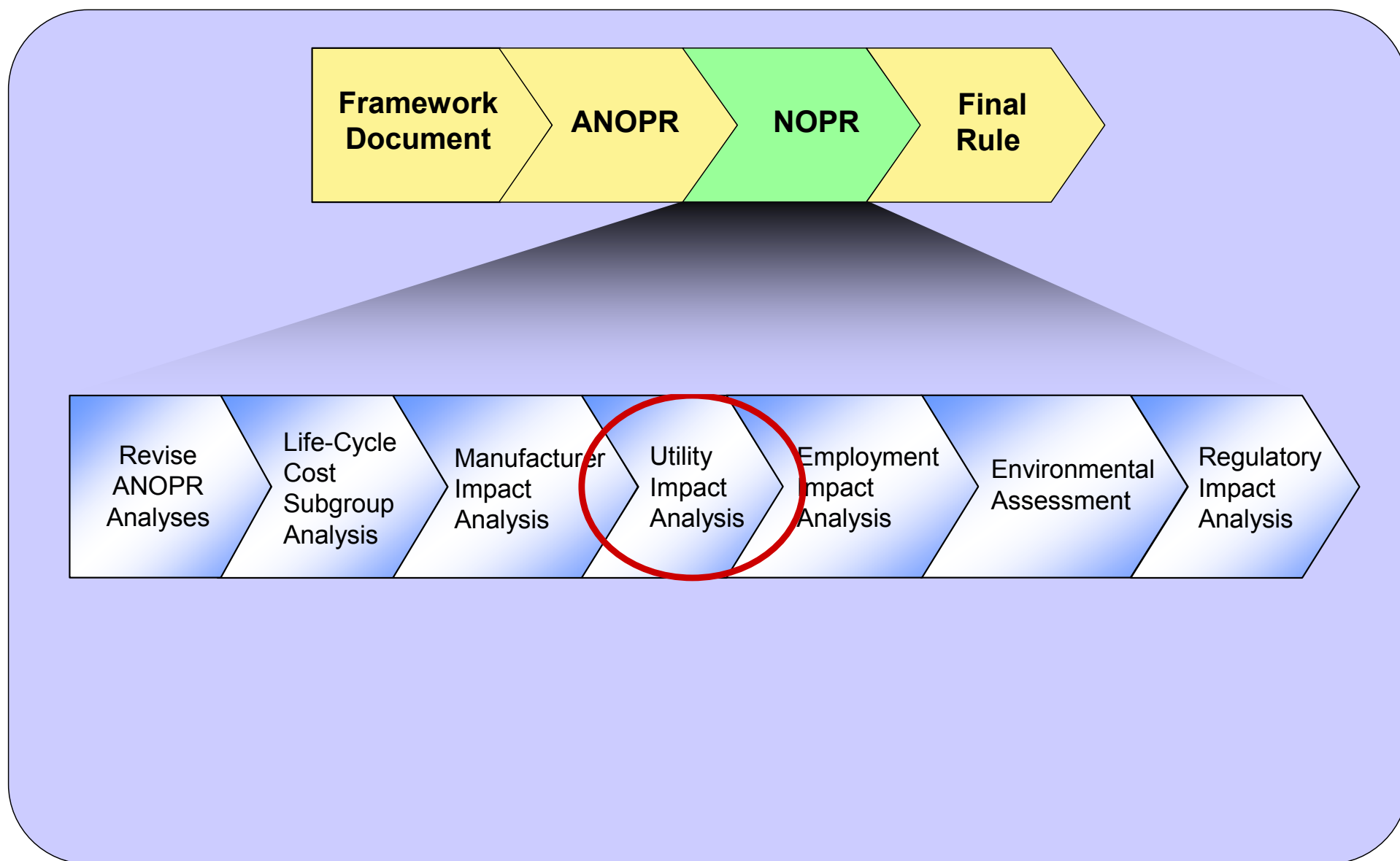
Item 12-1 What procedures should DOE follow when scheduling interviews and requesting information?

Item 12-2 The DOE seeks comments on the establishment of manufacturer subgroups for refrigerated beverage vending machines.

Item 12-3 What regulations or pending regulations should DOE consider in the analysis of cumulative regulatory burden?



Analyses for Notice of Proposed Rulemaking





Purpose

- Assess the overall impacts on domestic energy supplies that would result from the imposition of standards.

Method

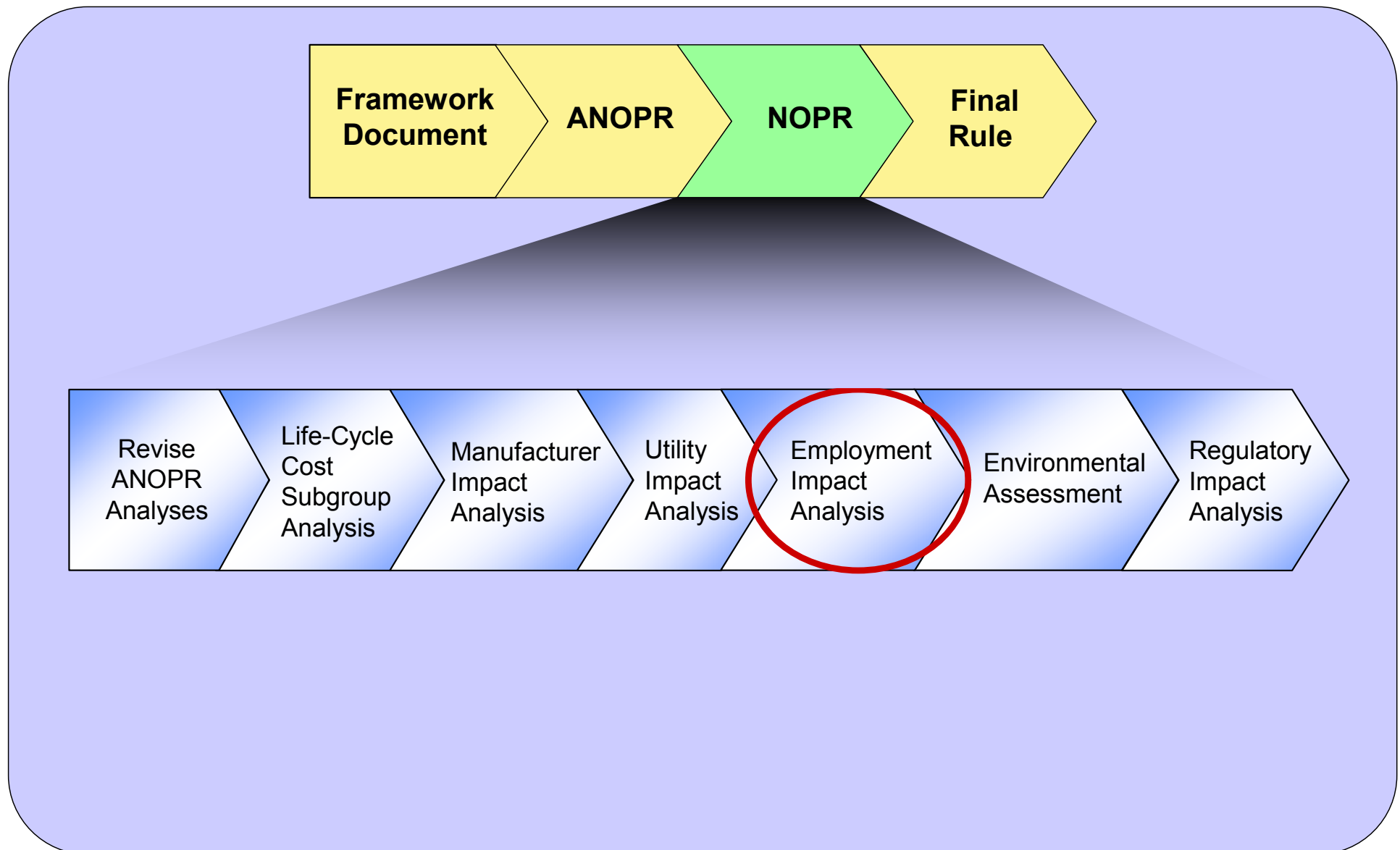
- The DOE proposes to use NEMS-BT, a variant of the NEMS (National Energy Modeling System) developed and used by DOE/EIA for their Annual Energy Outlook report, as the basis of the Utility Impact Analysis.
- Use the energy savings calculated from the NES spreadsheet analysis to reduce the sector electrical loads from the Commercial Building Demand Module in NEMS-BT.
- Energy savings translated to a reduction in the electrical demand faced by the utility system over time.

Item 13-1 The DOE seeks input on its proposed use of NEMS-BT to conduct the utility impact analysis.

Item 13-2 Should DOE consider using methods other than NEMS in the utility impact analysis?



Analyses for Notice of Proposed Rulemaking





Purpose

- Assess the overall impact on national employment from the imposition of efficiency standards at differing levels.
- Include both direct and indirect employment impacts
 - Direct employment impacts are estimated in the manufacturer impact analysis
 - Indirect employment impacts result from shifting consumer expenditures among goods and services (“substitution effect”) and changing equipment and energy costs (“income effect”)

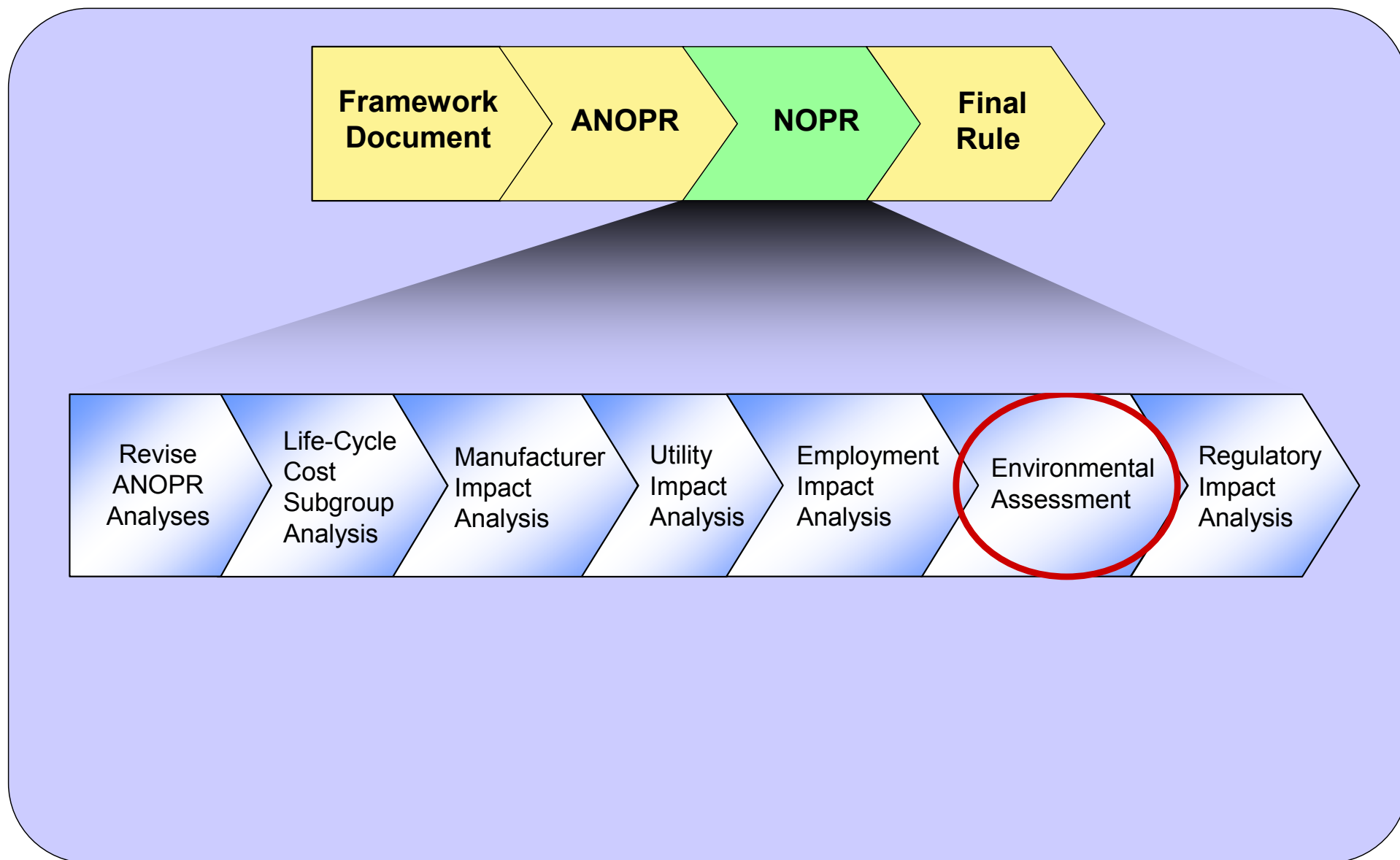
Method

- The DOE intends to use the IMSET* (Impact of Sector Energy Technologies) model for the evaluation of indirect employment impacts.

Item 14-1 The DOE requests feedback on this approach to assessing employment impacts



Analyses for Notice of Proposed Rulemaking





Purpose

- Estimate national environmental impacts from new energy conservation standards for BVMs covered under this rule.

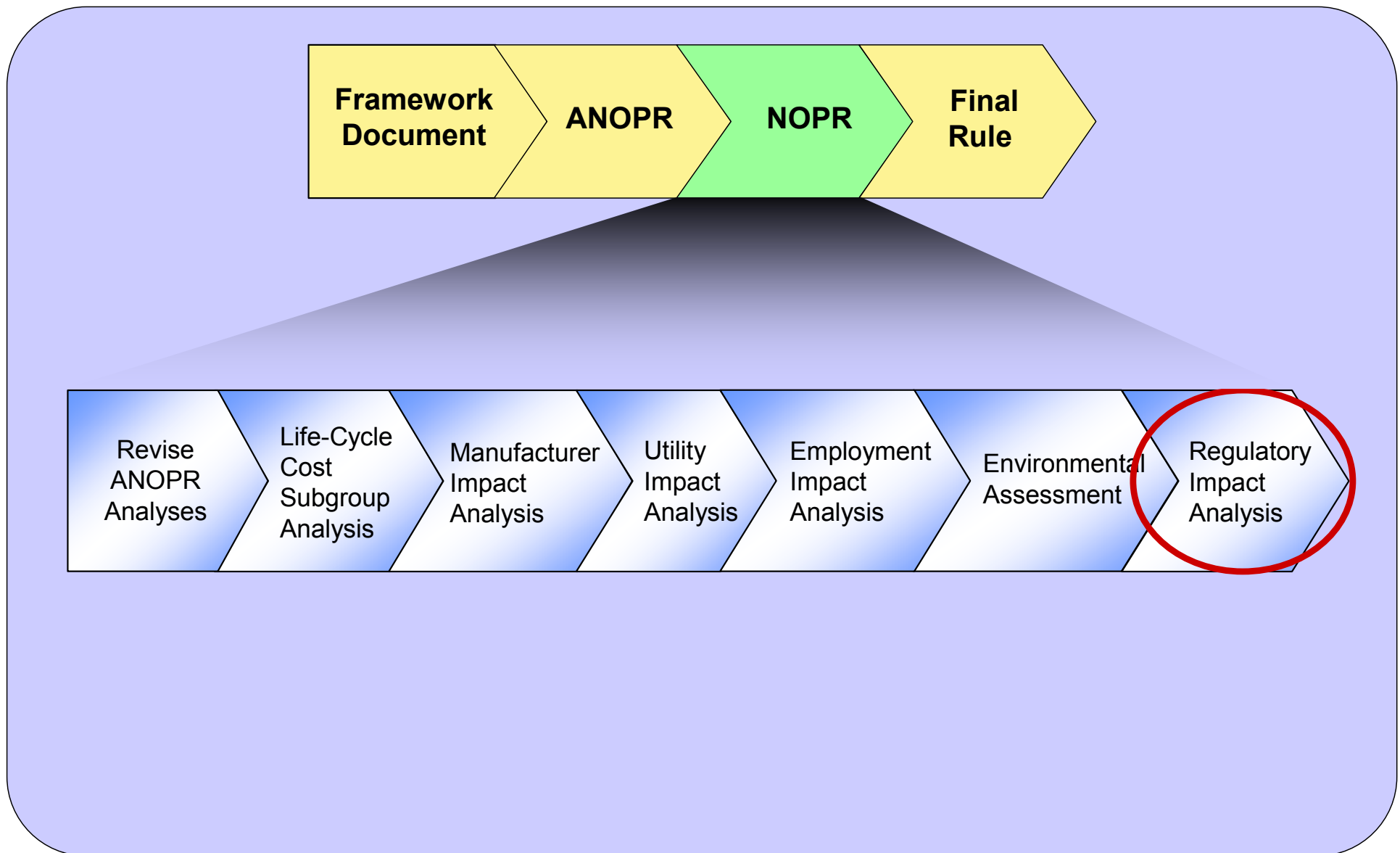
Method

- The Department intends to use the environmental impacts predicted from the NEMS-BT modeling analysis used for the Utility Impacts Analysis. Impacts calculated within NEMS include:
 - Quantities of U.S. emissions (CO_2) and nitrogen oxides (NO_x) from power plants
 - Direct environmental impacts from reduction of fossil fuel use at the building source.
 - Any measurable impact from NEMS in terms of the trading price of sulfur dioxide (SO_2) in the utility sector and subsequent impact on SO_2 emissions.

Item 15-1 The DOE requests feedback on its approach to assessing environmental factors.



Analyses for Notice of Proposed Rulemaking





Purpose

- Explore the potential for non-regulatory alternatives to energy conservation standards

Method

- Base the assessment on the actual impacts of any non-regulatory initiatives to date
- Consider any impacts that existing non-regulatory initiatives might have in the future

Item 16-1 The DOE is aware of the existing ENERGY STAR program for the refrigerated beverage vending machines covered under this rulemaking. What other such programs should DOE examine as optional, non-regulatory approaches to energy conservation standards?

Item 16-2 Are there particular subgroups of end-users whom DOE should consider in its review of potential adverse impacts from standards developed under this rulemaking?

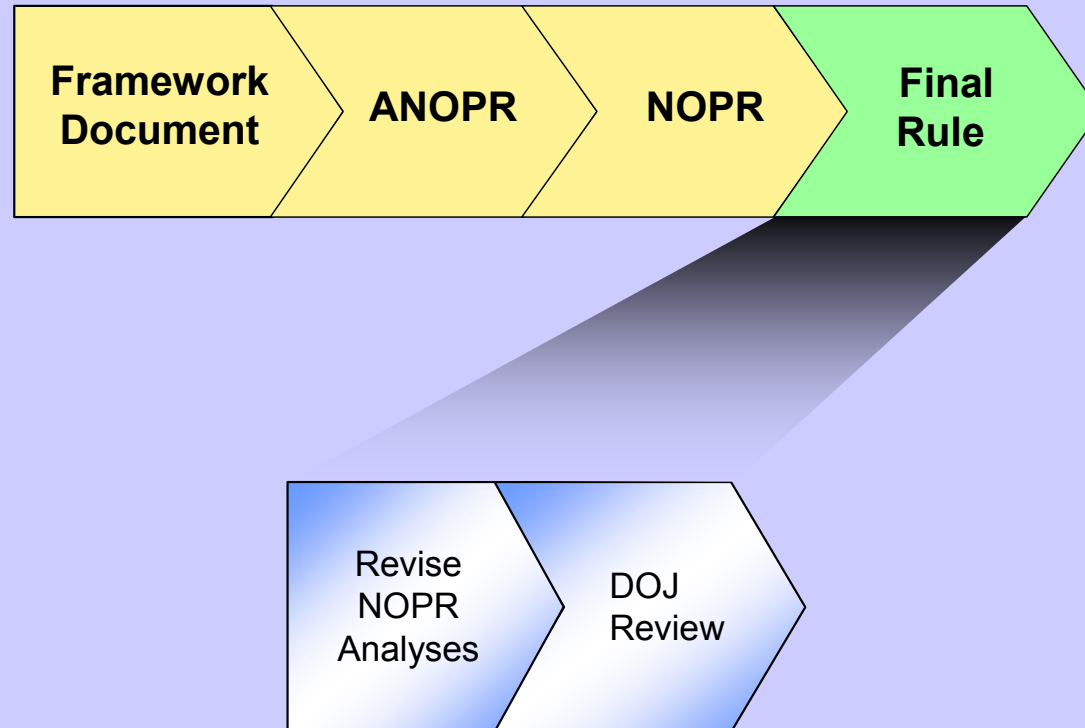


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Analyses for Final Rule





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Thank you. For more information...

- Written comments

- The comment period will be open until **July 27, 2006**.
Please reference the rulemaking docket number **EERE-2006-STD-0125** and/or RIN number **1904-AB58**, in all correspondence.

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- Websites:

http://www.eere.energy.gov/buildings/appliance_standards/

http://www.eere.energy.gov/buildings/appliance_standards/commercial/beverage_machines.html



Last Word

- **Review key decisions or accomplishments**
- **Identify next steps**
 - **Action items**
 - **People responsible**
 - **Due dates**
- **Evaluate session effectiveness**